



**LEGUMES** *of*  
KODERMA WILDLIFE SANCTUARY  
JHARKHAND



*by*  
**SHYAM BISWA**

**Legumes *of***  
**Koderma Wildlife Sanctuary**  
**Jharkhand**

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**SHYAM BISWA**

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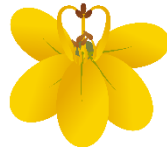
# Legumes of Koderma Wildlife Sanctuary, Jharkhand

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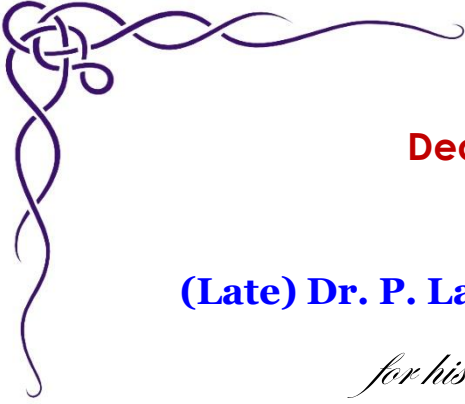


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**Dedicated**  
to  
**(Late) Dr. P. Lakshminarasimhan**  
*for his Blessings*



## FOREWARD

This publication is essentially a part of the doctoral thesis of the author entitled '**Floristic diversity of Koderma Wildlife Sanctuary, Jharkhand**' submitted to the Visva-Bharati University in 2018.

The Leguminosae Juss. of Koderma Wildlife Sanctuary (KWLS), Jharkhand are one of the most dominant angiosperm families of this region comprising 42 genera, 59 species, 2 subspecies and 1 variety. The circumscription of the three subfamilies namely, Caesalpinoideae, Papilionoideae and Mimosoideae have been presented in a traditional sense. The author has recorded 26 genera, 34 species and 01 varieties in the Papilionoideae; 9 genera, 16 species in Caesalpinoideae and 7 genera, 9 species and 2 subspecies in Mimosoideae in the Koderma Wildlife Sanctuary.

The accepted names of all taxa at generic and infrageneric level have been given after scrutiny of latest taxonomic literature. Local names have been given, if any. Morphological descriptions, phenology, distribution followed by GPS data and specimens examined and plant images would definitely be helpful to the students, researchers and forest officials who will be dealing with the plants of Koderma Wildlife Sanctuary for their future studies.

**Subir Bandyopadhyay**

Retired Scientist

**Botanical Survey of India**

## MESSAGE

Leguminosae (nom. alt Fabaceae) is the third largest angiosperm family of flowering plants after Orchidaceae and Asteraceae/Compositae with approximately 770 genera and over 19,500 species. Legumes are cosmopolitan in distribution, representing important ecological constituents in almost all biomes across the globe and occur in even the most extreme habitats. They also encompass a wide variety of life forms as tiny herbs, vines, lianas, shrubs to gigantic trees in the forests. However, the greatest diversity of legumes is in the tropical and sub-tropical regions. Leguminosae represents a family comprising 3 subfamilies, viz. Caesalpinioideae, Mimosoideae and Papilionoideae (nom. alt Faboideae). Economically, Leguminosae is second in importance only to Poaceae. According to Food and Agriculture Organisation the total world exports of pulses (i.e., legume crops harvested for their dry seeds) have more than doubled for the past few decades.

The Koderma Wild Life Sanctuary (KWLS), Jharkhand, in the present study reveals the family Leguminosae Juss. being the most dominant angiosperm family and Papilionoideae being the dominant among Caesalpinioideae and Mimosoideae. This taxonomic account will facilitate the researchers who are working on this family in Bihar and Jharkhand and in the dry deciduous forest.

Although several changes in the genera and the species have been taken place, the present work maintains latest and the most accepted concept with regard to genera, species and infraspecific taxa.

As protected areas are the prime centres of conservation and diversity, scientific information on all taxa needs to be collected and documented. This sort of study and activities will have an impact in managing the wildlife and will be useful in understanding ecological processes and taking appropriate conservation and management actions by the managers.

The present work would undoubtedly generate interest in the study of the concerned family and greatly help academicians, students, researchers, naturalists, foresters, conservationists and policy makers.

**Dr. R.K. Gupta**

Retired Scientist 'F' & Head of Office **Central  
National Herbarium,  
Botanical Survey of India**

## PREFACE

This monograph, **Legumes of Koderma Wildlife Sanctuary, Jharkhand**, presents the findings of an intensive **floristic investigation** conducted within the **Koderma Wildlife Sanctuary (KWLS)**. The data affirm the **Leguminosae (Fabaceae)** as a **taxonomic dominant** component of the sanctuary's extant vegetation, which is consistent with the established **phytogeographical profile** of the Bihar and Jharkhand region.

Globally, Leguminosae constitutes the **third-largest family of Angiosperms**, comprising approximately 770 genera and exceeding 19,500 species. Its **cosmopolitan distribution** underscores its status as a critical ecological constituent across virtually all biomes, including edaphically or climatically extreme habitats. The family exhibits profound **morphological plasticity**, ranging across diverse life forms from herbaceous annuals and perennial vines to gigantic arborescent taxa.

The diagnostic **morphological characteristic** of the family is the **legume (pod) fruit**, which develops from a single, superior carpel with marginal placentation—a trait universally observed among the taxa documented herein. While the family is pan-global, its **peak diversity and abundance are concentrated in tropical and sub-tropical zones**, where legumes are fundamental structural elements of forest and savanna ecosystems. Beyond their role in **soil quality enhancement** (crucial for maintaining global food security), the derived **pulses** are indispensable global food crops, supplying essential protein and micronutrients that benefit human health and livelihoods.

This treatise furnishes a **detailed systematic enumeration and documentation** of the native and naturalized legume flora within the specific geographical confines of the KWLS. Methodologically, this work adheres to the **contemporary systematic perspective** which treats Leguminosae as a singular family partitioned into three major **subfamilies: Caesalpinioideae, Mimosoideae, and Papilionoideae (Faboideae)**. This documentation, reflecting a modern **phylogenetic classification**, is intended to serve as a robust **taxonomic foundation** for subsequent ecological and botanical research focused on the flora of the Koderma Wildlife Sanctuary.

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The author gratefully acknowledges **Excellent Publishers** and **Dr. Mitta Mahendra Nath** for providing the crucial technical support necessary for the publication of this book.

Finally, the author gratefully acknowledges the **unstinted support** provided by family members throughout the duration of this study.



## LIST OF ABBREVIATIONS

**c.:** circa (about)

**CAL:** Central National Herbarium

**ed.:** editor; **eds.:** editors

**ex:** from

**f.** (after a personal name): **filius** (son)

**Fl.:** Flowering

**Fr.:** Fruiting

**KWLS:** Koderma Wildlife Sanctuary

**nom:** nomen (name)

**nom. alt.:** nomen alternativum (alternative name)

**nom. cons:** nomen conservandum (conserved name)

**p.p.:** pro parte (partly)

**sp.:** species (singular); **spp.** (plural)

**subsp.:** subspecies

**syn.:** synonym

**var.:** variety

**& al.:** and others

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## **ABOUT THE AUTHOR**



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Dr. Shyam Biswa, joined the Botanical Survey of India (BSI) in 2006 at the Central National Herbarium, BSI, Howrah. He was awarded his Ph.D. in Botany from Visva Bharati University on 2018. He has worked in protected areas and Flora of Bihar and Jharkhand and at present working on Revisionary studies in *Ligularia* of India. He has also contributed to a project for the Forest Department of West Bengal on the Flora of Medicinal Plant Conservation Area, Purulia. He has published 14 articles, including 2 book chapters in peer-reviewed journals, covering topics such as Phytodiversity, Biodiversity, Ethnobotany, Medicinal Studies, Conservation Threats, New State Records, and Rediscoveries. As a resource person, he has conducted training on herbarium methodology and plant identification at various colleges and universities across West Bengal, Bihar, Jharkhand, and Odisha. Dr. Shyam was deputed to the Natural History Museum in London, United Kingdom, for 25-day training program in herbarium curation and digitization of plant specimens from India.



*Butea monosperma*  
**State Flower of Jharkhand, India**



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