

Short Communication

Bees of Thusharagiri, Kozhikode, Kerala, India

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Abstract. The study was conducted to prepare a preliminary checklist of bees of Thusharagiri, Kozhikode, Kerala State. The rainfall occurs between June to October. The present study helps to know about the species belongs to bee families. Family Apidae represents 22 species, which is the largest family. Family Halictidae represents 6 genera and 2 genera belong to the family Megachilidae. This study will enlighten the knowledge regarding the diversity of bees and forms a reference data for future studies on bee.

Key words: Bees, Thusharagiri, Hymenoptera, Apidae, Kozhikode.

INTRODUCTION

The superfamily Apoidea can be categorized into two series: the Sphecoid wasps, also known as Spheciformes, and the bees, referred to as Apiformes (Brothers 1975). This superfamily comprises seven families of bees, namely Apidae, Megachilidae, Andrenidae, Collectidae, Halictidae, Melittidae, and Stenotritidae (Mason and Huber, 1993). Significant research on global bee fauna was conducted by Michener (2007) in his work titled “The Bees of the World,” which encompasses approximately 16,000 species within the superfamily Apoidea. Bees play an invaluable role as pollinators, with many plant species relying entirely on them for reproduction. Both national and international organizations are increasingly recognizing and advocating for the conservation of native pollinators, primarily bees, to ensure agricultural productivity and the preservation of native flora. There are around 20,000 recognized bee species globally (Michener, 2007; Ascher and Pickering, 2014). Bees hold a distinctive position within the arthropod community, serving as crucial pollinators for both wild plants and cultivated crops, while certain species also produce valuable products such as honey and wax. The highest diversity of bees is observed in arid regions. However, taxonomic research on

bees remains incomplete and necessitates further investigation. This paper presents a checklist of bee genera from Thusharagiri, based on specimens collected. Keralam is noted for its rich bee diversity. In 2002, Jobiraj documented 64 bee species in Keralam, including 19 new species. Sheeja and Jobiraj (2017) studied the bee fauna of the Vanaparvam biodiversity park in Kozhikode, Keralam, identifying 18 species across 9 genera. Additionally, Prakash et al. (2020) published a checklist of Keralam's bees, reporting 86 species across 19 genera. In 2023, Anju *et al.* identified 14 bee species from the Christ College campus in Irinjalakuda, Keralam.

Study area:

Thusharagiri is situated at coordinates 11.28° N and 76.3° E, with an elevation of 15 meters. This scenic spot is approximately 51 kilometers from Kozhikode town. The name “Thusharagiri” translates to “snow-capped mountains,” a fitting title for its beautiful landscape. The area thrives primarily on tourism and agriculture, attracting visitors with its stunning waterfalls. It features three main waterfalls: Erattumukku, Mazhavil Chatom, and Thumbithullumpara. Among these, the tallest waterfall cascades from an impressive height, with temperatures ranging from 21.4°C to 33.5°C. The region maintains an average humidity of 52%, adding to its lush and vibrant atmosphere.

Methods

The study was conducted in Thusharagiri, Kozhikode from August 2023 to January 2024. Collections were made every month between 9 am to 12 pm and 4 pm to 6 pm on the collection days. The specimens collected were killed using ethyl acetate in killing bottles, pinned and dried. Air tight insect wooden boxes were used to preserve the specimens. Identification keys, standard reference books and available literature were used for identifying the collected bees upto species level.

Results and Discussion

. A total of 30 species from 3 families were identified in Thusharagiri. The Apidae family, which is the largest, comprises 22 species of honey bees. The Halictidae family includes 6 genera, while 2 genera are classified under the Megachilidae family. These findings are highly significant and highlight the critical role of the Thusharagiri waterfall area in preserving biological diversity.

CHECKLIST OF BEES OF THUSHARAGIRI

FAMILY: APIDAE

SUBFAMILY 1: Apinae

Genus 1 .*AMEGILLA* Friese

1. *Amegilla zonata* Linnaeus

Genus 2.*APIS* Linnaeus

1. *Apis cerana* Fabricius

2. *Apis dorsata* Fabricius

3. *Apis florea* Fabricius

4. *Apis mellifera* Linnaeus

Genus 3.*LISOTRIGONA* Moure

1. *Lisotrigona cacciae* Nurse
2. *Lisotrigona mohandasi* Narendran and Jobiraj

Genus 4.*THYREUS* Panzer

1. *Thyreus histrio* (Fabricius)
2. *Thyreus surniculus* Lieftinck

Genus 5.*TETRAGONULA* Jurine

1. *Tetragonula travancorica* Shanas and Faseeh

SUBFAMILY 2.*Xylocopinae***Genus1.***BRAUNSAPIS* Michener

1. *Braunsapis mixta* (Smith)
2. *Braunsapis pcitarsis* (Cameron)
3. *Braunsapis puangensis* (Cockerell)

Genus 2.*CERATINA* Latreille

1. *Ceratina binghami* Cockerell
2. *Ceratina heiroglyphica* Smith
3. *Ceratina propinga* Cameron
4. *Ceratina smaragdula* Fabricius
5. *Ceratina unimaculata* Cameron

Genus 3.*XYLOCOPA* Latreille

1. *Xylocopa aestuans* (Linnaeus)
2. *Xylocopa latipes* (Drury)
3. *Xylocopa tenuiscapa* Westwood
4. *Xylocopa verticalis* Lepeletier

FAMILY: HALICTIDAE**SUBFAMILY:1** Halictinae**Genus1.** *HALICTUS* Latreille

1. *Halictus* sp.1

Genus 2.*LASIOGLOSSUM* Curtis

1. *Lasioglossum albescens* (Smith, 1853)
2. *Lasioglossum* sp.1

Genus 3.*SPHECODES* Latreille

1. *Sphecodes* sp.1

SUBFAMILY: NOMINAE**Genus1.** *Lipotriches* Gerstaecker**Genus2.** *Nomia* Latreille

Genus3. *Pseudapis* Kirby
FAMILY: MEGHACHILIDAE
SUBFAMILY: 1.Megachilinae

Genus 1.*Megachile* Latrellie
1. *Megachile carbonaria* Smith
2. *Megachile quartinae* Gribodo

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