BAB I. INTRODUCTION

1.1 Background

The diversity of amphibians for each order in the world is demonstrated by AmphibiaWeb 2021, which identified 8,281 species of amphibians worldwide, 7,307 species from the Anuran order (88 %), 760 species from the Caudata order (9 %), and 214 species from the Gymnophiona order (3 %). Amphibians rank fourth out of five classes of vertebrate animals in terms of the number of species, according to the IUCN RedList 2022. This is more than the known species of mammals, which number 5.968, but less than fish, which have 22.936 species, birds 11.241 species, and reptiles 10,149 species.

Global Amphibian Assessment (GAA) that conducted by IUCN in 2004 for the evaluation of 5,743 amphibians worldwide, report that 1,856 species are threatened by extinction nine species have become extinct since 1980, 113 species are no longer found and 43% of all species have decreased in the population (Stuart *et al.*, 2005; Kusrini, 2007), this data shows that amphibians are animals that are very vulnerable to extinction. According to Kusrini (2007), the factors that cause a decline in the amphibian population are overfishing, reduction of forests and wetlands, pollution, diseases, and introductory species.

Indonesia is a country that has a high diversity of amphibian. International Union for Conservation of Nature (IUCN) reported that in 2022 there were about 445 amphibian species recorded in Indonesia with 214 species as endemic species (48%). According to Pratihar *et al.* (2014), Indonesia is in the second rank for the highest level

endemicity of amphibians in Asia. Sumatra as the 3rd largest island in Indonesia is recorded to have 94 amphibian species with 21 are endemic (Inger and Iskandar, 2005). West Sumatra has 61 species of amphibian (Teynie *et al.,* 2010) and it is estimated that the number of species will increase if research continues.

Amphibians are grouped into three orders, that is Gymnophiona, Caudata, and Anuran, but in Indonesia only orders Gymnophiona and Anura can be found. Most research in Indonesia is regarding the Anura order, and for Gymnophiona order is still lacking. Gymnophiona has ten families, that is Caeciliidae, Rhinatrematidae, Chikilidae, Dermophiidae, Herpelidae, Ichthyophiidae, Indotyphlidae, Siphonopidae, Scolecomorphidae, and Typhlonectidae (AmphibianWeb, 2021), but in Indoenesia only Ichthyophiidae family that has been reported existing.

Ichthyophis is a genus from Ichthyophiidae family, the characteristics are legless, worm-like body, smooth skin, small eyes, a pair of tentacles between the eyes and nostrils, and most of them live confined to tropical forest areas (Gudyna *et al.*, 1988; Harapan *et al.*, 2020). This genus is considered rare and difficult to know its existence in the environment because they have a habit of living in burrows (fossorial) requires clean waters and very sensitive with the environmental change. According to research by Rury (2010), *Ichthyophis sp.* can be found in humid places like in small muddy rivers in natural holes in rivers that are not fast, and in flooded paddy fields. *Ichthyophis* is mostly known in Southeast Asia and India. As the center of the diversity of Ichthyophiidae, Southeast Asia has about 48 species (IUCN, 2021).

Indonesia have ten species of *Ichthyophis* is the second rank after Malaysia in Southeast Asia about amount species of *Ichthyophis*, and six of them founded in Sumatra. That is *Ichthyophis billitonensis*, *Ichthyophis paucisulcus*, *Ichthyophis sumatranus*, *Ichthyophis elongatus*, *Ichthyophis nigroflavus (uncertain)*, and *Ichthyophis paucidentulus*, and the rest were found in Java and Kalimantan (Iskandar, 1998; Kusrini, 2007). This shows the potential of the Sumatra island for the existence of *Ichthyophis* is quite high.

Studies about *Ichthyophis* in Sumatra conducted by Teynie in 2010, regarding amphibians and reptiles in West Sumatra has reported the existence of a species of *Ichthyophis* in West Sumatra, namely *I. paucisulcus*. Recent research on *Ichthyophis* in Sumatra was conducted by Harapan *et al.* (2020) who reported the distribution of a new record for the species *I. elongatus*. But in this publication, the author also finds *I.* cf. *sumatranus*, but did not carry out a comprehensive identification of *I.* cf. *sumatranus. I. sumatranus* was first published by Taylor in 1960, found in Kapahiang, Bengkulu Province, Sumatra Island and there is no further data. Based on this, this study will be conducted to ascertain the taxonomic status of these assumptions using morphometric and meristic analysis on *I.* cf. *sumatranus.*

1.2 Problem Statement

Based on the description above, the problem statement of this research is:

1. What are the morphometric and meristic characters of *I.* cf. *sumatranus* which is prediction distributed in West Sumatra?
2. Is *I.* cf. *sumatranus* published in previous studies a different type?

1.3 Research Purposes

The aims of this research is:

1. Show comparison between morphometric and meristic characterization on *I.* cf. *sumatranus* in West Sumatra and *I. sumatranus* in Bengkulu Province.
2. Confirming taxonomic status in *I.* cf. *sumatranus* in West Sumatra.

1.4 Research Benefits

The results of this study are expected to provide the latest information about *Ichthyophis*. And can be a reference for further research on *Ichthyophis*, especially on the Sumatra Island.