

## Lizard Community in Tathleeth District of Southwestern Saudi Arabia

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### ABSTRACT

Tathleeth governorate in Aseer region of southwestern Saudi Arabia has been surveyed for 22 lizard species belonging to 6 families throughout three years started from 2015. A total of 412 specimens of these lizards were encountered and identified. Gekkonidae represented the major family inhabiting the region comprising more than 50% of the collected lizards. Agamidae was represented by 5 species comprising more than 23% of the recorded lizards. The other four families (Lacertidae, Scincidae, Chamaeleonidae and Varanidae) comprised approximately 20% of all the collected lizards. The current survey could be used as conservational clue for the herpetofauna of Tathleeth.

### INTRODUCTION

Saudi Arabia is a wide arid country with habitats varied between mountains, plains, valleys and desert. It is located between tropical and subtropical temperate zones possessing a unique diversified fauna. Several studies have been conducted on reptiles of different Saudi Arabian habitats (Parker, 1938; Al-Wailly and Al-Uthman, 1971; Farag and Banaja, 1980; Masood and Asiry, 2012; Al-Shammari and Ibrahim, 2014; Aloufi and Zuhair, 2015; Al-Sadoon et al., 2016 and references cited therein). Approximately, 100 lizard species and 55 snake species comprise the herpetofauna of Saudi Arabia (Al-Sadoon, 2010). Several investigations have described reptilian fauna from different regions of Saudi Arabia, however, the Southwestern part, in general, was the least studied area (Hussein and Darwish, 2001; Masood and Asiry, 2012).

Tathleeth is one of the highly diversified regions in the country having large group of wild animals. The region is located at the southwestern part of Saudi Arabia occupying nearly 50,000 km<sup>2</sup> with altitude ranging from 1000 to 1400 m over the sea level. However, the region did not receive enough attention regarding its herpetofauna ecology and biodiversity. This study is thus, undertaken to survey and identify the barely known lizard fauna of Tathleeth region. The Survey included 10 seasons of three successive years from spring 2015 to summer 2017 during the suitable activity environmental conditions in which reptiles and amphibians showed their optimal activity.

## MATERIALS AND METHODS

### Study Area:

Tathleeth governorate is the largest region in southwestern Saudi Arabia. It lies between  $18^{\circ} 42' - 20^{\circ} 00'$  N and  $34^{\circ} 20' - 44^{\circ} 30'$  E (Fig. 1). It is approximately 1150 m height in the eastern part and 1400 m in the southwestern part above the sea level and is characterized by unique topography, geomorphology, and biodiversity. It also exhibits several landscape types such as isolated rugged mountains, clumps, plains, escarpments, flat-topped plateaus, valleys, rock and sandy desert. The mountains are noticeable in the southern part with some valleys. Al'amq wide plains, Almasamah and Almethab, extend along with Tathleeth valley from the south to the north of the governorate. Across the valleys, agricultural activities are encountered along their sides. Mountains diminish north and northeastern having open sandy areas which finally connect with Rub Alkhali. The climate of the study area is characterized by hot summers and mild winters. The area is almost dry during the year (Al-Nafie, 2008; Mohandes and Rehman, 2010) except for the rainy months of March, April and sometimes in May. The animals were mostly observed and collected between dawn and midmorning or shortly before sunset. Different collection methods like hand capturing, noosing method or traps were applied during this survey.

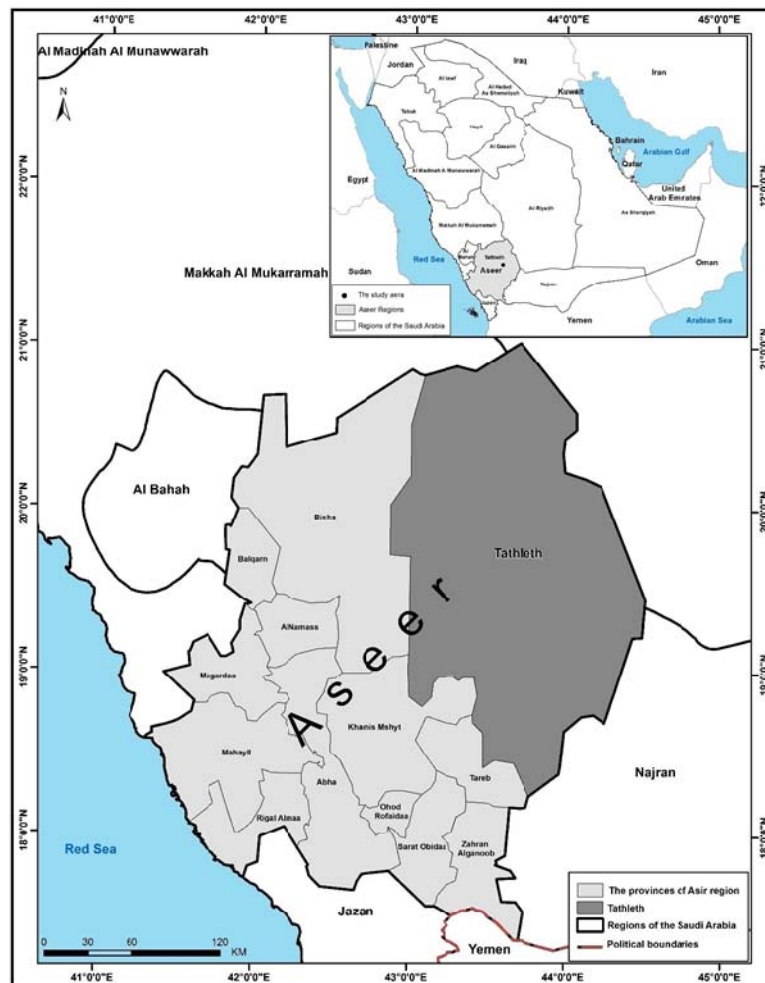


Fig. 1. Map of the southwestern part of Saudi Arabia referring to Tathleeth district.

**Methodology:**

The area of study was annually surveyed from April 2015 to October 2017 when animals become active. The survey was conducted commonly during the day time from 8 AM to 6 PM, while some rare species required a night survey from 7 PM to 2 AM.

Lizards were collected during day and night in equipped sacs by hands. Other tools of samples collection include manual digging, lifting rock, and pruning thorns and trees in collection were required. Some water dams, lakes and water ponds were surveyed mostly at night with the help of manual lamps and hunting nets. Experimentally, the collected specimens were weighed, preserved in formalin or ethyl alcohol and finally transferred to the lab for morphological investigations and classification

**RESULTS AND DISCUSSION**

Lizards of Saudi Arabia have paid the attention of many researchers regarding their biogeography, distribution and systematics three decades ago. This attention has been increased after the Gulf war as these animals faced severe environmental changes that affect their population density and therefore some of the fauna have been endangered. Table 1 represents the different collected species, describing their habitat, time of collection and the statistical data. The percentage of an individual was calculated as the number of individuals collected in one study site divided by the total number of individuals collected from the whole study area. Note that the percentages are different from those in the results, which were calculated based on number of species rather than number of individuals (Wolf et al., 2016).

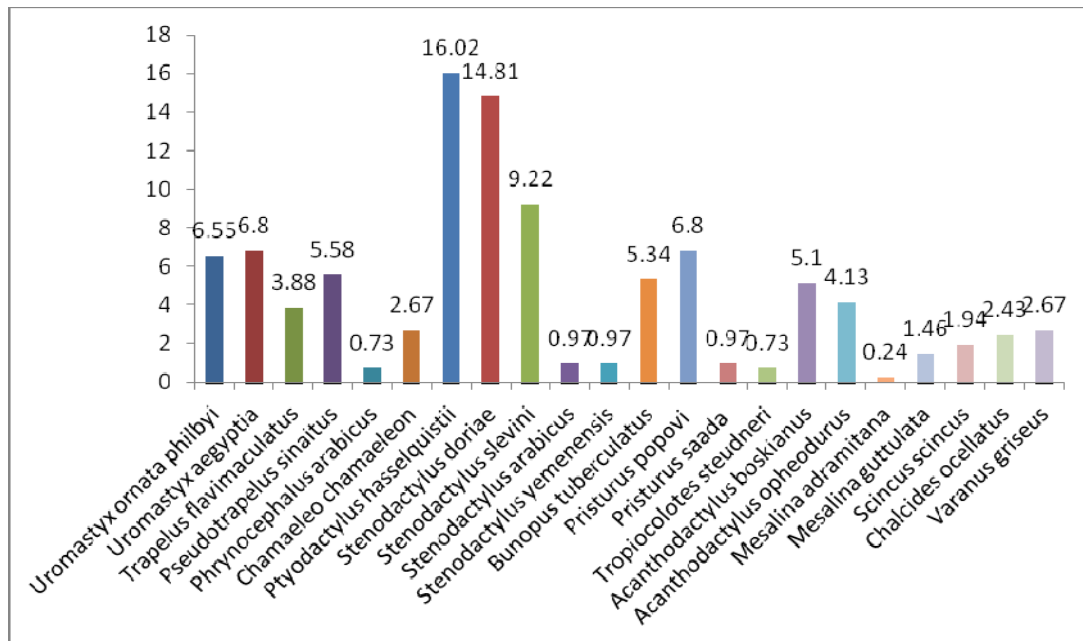
**Table 1. Distribution of lizards collected at different study areas.**

Species	Family	Habitat	Number	% richness
<i>Uromastix ornata philbyi</i>	Agamidae	Rocky	27	6.55
<i>Uromastix aegyptia</i>		Plains	28	6.80
<i>Trapelus flavimaculatus</i>		Tree plains	16	3.88
<i>Pseudotrapelus sinaitus</i>		Rocky	23	5.58
<i>Phrynocephalus arabicus</i>		Sandy plains	3	0.73
<i>Chamaeleo chamaeleon</i>	Chamaeleonidae	Valleys/ Arboreal	11	2.67
<i>Ptyodactylus hasselquistii</i>	Gekkonidae	Rocky	66	16.02
<i>Stenodactylus doriae</i>		Sandy	61	14.81
<i>Stenodactylus slevini</i>		Plains	38	9.22
<i>Stenodactylus arabicus</i>		Sandy	4	0.97
<i>Stenodactylus yemenensis</i>		plains	4	0.97
<i>Bunopus tuberculatus</i>		Basalt	22	5.34
<i>Pristurus popovi</i>		Rocky	28	6.80
<i>Pristurus saada</i>		Rocky	4	0.97
<i>Tropicolotes steudneri</i>		Rocky	3	0.73
<i>Acanthodactylus boskianus</i>		Lacertidae	Plains	21
<i>Acanthodactylus ophodurus</i>	Plains		17	4.13
<i>Mesalina adramitana</i>	Valleys and Plains		1	0.24
<i>Mesalina guttulata</i>	Basaltic Plains		6	1.46
<i>Scincus scincus</i>	Scincidae	Sandy	8	1.94
<i>Chalcides ocellatus</i>		Agricultural Fields	10	2.43
<i>Varanus griseus</i>	Varanidae	Valleys and Plains	11	2.67

Gekkonidae represented the most abundant lizards in Tathleeth. Two hundred thirty specimens of gekkonids represented 55.83 % of lizards in Tathleeth region. The distribution percentage of the recorded *Ptyodactylus hasselquistii*, *Stenodactylus*

*doriae*, *Stenodactylus slevini*, *Pristurus popovi*, *Bunopus tuberculatus*, *Stenodactylus yemenensis*, *Pristurus saada*, *Stenodactylus arabicus* and *Tropiocolotes steudneri* within the family were about 28.7%, 26.5%, 16.5%, 12.17%, 9.57%, 1.74%, 1.74% and 1.74%, 1.30%, respectively (Fig. 2). *Ptyodactylus hasselquistii* was hunted during day time during which the lizard activity become optimum. *Stenodactylus doriae* (16.5% in the family) exists in sandy environment and sandy plains, which explains their capture at night.

As shown in Table 1, the second abundant lizards in Tathleeth region are agamids. Nightly seven agamids which represented 23.54% of the lizards in Tathleeth area have been recorded. These agamids were distinguished into 6 species, namely, *Uromastix ornata philbyi*, *Uromastix aegyptia*, *Trapelus flavimaculatus*, *Pseudotrapelus sinaitus* and *Phrynocephalus arabicus*. *Uromastix ornata philbyi* accounted 6.55% of the hunted lizards and 27.8% of the family; 28 and 23 individuals of *Uromastix aegyptia* and *Agama sinaita* were respectively recorded to represent 28.87% and 23.71% of the family and 6.8% and 5.58 % of the total lizards. *Trapelus flavimaculatus* and *Phrynocephalus arabicus* represented 16.49% and 3.09% of the family, respectively and they represented 3.88% and 0.73% of the lizards respectively. The habitat of the most recorded Agamidae was rocky environment encountered a shortage of food which explains their hunting during day time (Al-Sadoon et al., 2016). Other species may be found in tree plains and sandy dunes; the later could practice their activities during the day or night, simultaneously (Masood and Asiry, 2012). Although, *Uromastix* is considered as an endangered species, it is the most abundant genus among the recorded Agamidae in Tathleeth. However, *Uromastix* faces severe hunting in the region since it is used in pet shops and as a human food and therefore it received special attention in studying its molecular systematic (Amer and Kumazawa, 2005). In Tathleeth region, *Uromastix ornata* has been studied ecologically by the author (Alqahtani, 2004).



**Fig. 2. Statistical variation of lizards' species in Tathleeth region of KSA**

Four lacertid species represented by 45 specimens were collected namely, *Acanthodactylus boskianus*, *Acanthodactylus ophiodurus*, *Mesalina guttulata* and *Mesalina adramitana*. They accounted within the family 46.67%, 37.78%, 13.33% and 2.22%, respectively. Although they were not found in rocky environment, they were captured during the day time as the temperature encountered for their activities (Arnold, 1986). The scincid lizards *Chalcides ocellatus* and *Scincus scincus* were represented by 55.55% and 44.44% within the family, respectively. *Chalcides ocellatus* was the only lizard captured in agricultural fields. *Chamaeleo chamaeleon* was the only chamaeleonid and *Varanus griseus* was the only varanid that were recorded in the studied area.

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