



•生物编目•

# 云南省爬行动物名录和地理区划更新

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**摘要:** 云南省作为中国生物多样性最高的省份, 其详实的物种本底资料对我国生物多样性研究和保护具有重要意义。本文在前期研究的基础上, 结合实体标本, 汇总编制了云南省现生、原生爬行动物更新名录。截至2021年12月31日, 云南省记录爬行动物25科82属235种, 其中龟鳖目4科12属16种, 有鳞目蜥蜴亚目6科20属72种, 蛇亚目15科50属147种。较《云南两栖爬行动物》确认新增82种, 存疑收录21种, 移除23种。基于先前云南省爬行动物区划和更新后的物种分布信息, 将云南省爬行动物地理分为6个动物地理区, 即滇西北横断山区、滇西山地区、滇南山地区、滇东南山地区、滇中高原区以及滇东北山地区; 其中滇西北横断山区、滇西山地区、滇中高原区和滇东南山地区的范围与先前研究相比有所调整。结合调整后的爬行动物地理区划, 对物种分布、物种特有性、受威胁状况等给出了统计结果。云南省爬行动物特有物种、国内仅见于云南的非特有物种数量较多, 受威胁等级高。建议今后继续加大分类学研究投入, 对滇西北、滇中特有爬行动物分布集中的区域积极开展栖息地保护工作, 同时在最新调整的《国家重点保护野生动物名录》基础上, 定期组织专家研讨, 对《云南省省级重点保护动物名录》提出更新建议。

**关键词:** 省重点保护野生动物名录; 存疑纪录; 分类厘定; 更新名录; 野生动物保护法

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## The updated checklist and zoogeographic division of the reptilian fauna of Yunnan Province, China

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### ABSTRACT

**Aims:** Yunnan Province has the richest biodiversity among all administrative regions in China. Therefore, having detailed, updated checklists of different fauna and flora groups of Yunnan are particularly important for the conservation and scientific utilization of biodiversity in China.

**Methods:** Based on published literatures and examination of relevant specimens in natural history museums in China, we update the checklist of the reptilian fauna of Yunnan. Following the update, we revised the zoogeographic division of reptilian fauna of Yunnan and compiled diversity-related statistics for each zoogeographic region.

**Results:** As of 31st December, 2021, there are 235 recognized species of reptiles in 82 genera, 25 families, and 2 orders recorded from Yunnan Province of China, including 16 species of Testudines in 12 genera, 4 families, 72 species of Lacertilia in 20 genera, 6 families, and 147 species of Serpentes in 50 genera, 15 families. Comparing to the latest monograph, *Amphibia and Reptilia of Yunnan*, which was published in 2008, our updated checklist added 82 new

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records, retained 21 questionable records, and removed records of 23 recognized species from Yunnan. With the revised taxonomy and distribution data of Yunnan's reptilian fauna, we continued to recognize six zoogeographic regions in Yunnan, namely Northwestern Hengduan Mountains of Yunnan, Western Hills of Yunnan, Southern Hills of Yunnan, Southeastern Hills of Yunnan, Northern and Central Yunnan Plateau, and Northeastern Hills of Yunnan; but we adjusted the ranges for four of these regions, namely Northwestern Hengduan Mountains of Yunnan, Western Hills of Yunnan, Southeastern Hills of Yunnan, and Northern and Central Yunnan Plateau. While the three southern zoogeographic regions have the highest overall diversity, the Northwestern Hengduan Mountains of Yunnan and Central Yunnan Plateau have the highest percentage of endemic species. In total, 13% of the recorded taxa are endemic to Yunnan, 33% of the taxa are only found in Yunnan within China, and 26% of the taxa have been initially described from Yunnan. Taxonomically, Lacertilia constitutes the highest percentage of endemic taxa, which is followed by Serpentes and Testudines. For conservation, about 34% of the assessed reptile species of Yunnan are considered threatened based on *China's Red List of Biodiversity•Vertebrates (Vol. III): Reptiles*, and about 16% of the total species of Yunnan still lack conservation assessments. In contrast, only 12% of the recorded species are nationally protected. Of the six zoogeographic regions of Yunnan, the Southern Hills of Yunnan have the highest percentage of threatened species and the highest number of nationally protected species.

**Conclusion:** The reptilian diversity of Yunnan is still underestimated, and the taxonomy of the recorded species is changing regularly. Taxonomy should continue to be the focus of herpetological studies in the future, and detailed distribution data at higher resolution are needed, preferably to the county level. The percentage of endemic species of Yunnan and the conservation threat of Yunnan's reptilian fauna are both high. Habitat conservations of endemic species in northwest and central Yunnan warrants particular attention. Lastly, as taxonomy and conservation status of species are changing regularly, and given many threatened species are not currently protected by the List of Wild Animals under Special State Protection, we call for the update of the List of Wild Animals under Special Provincial Protection of Yunnan, so that the overlooked, threatened species and their habitats can have legal protection converge.

**Key words:** List of Wild Animals under Special Provincial Protection; questionable records; taxonomic revision; updated checklist; wildlife protection law

云南地处我国西南边陲, 位于97°39'–106°12' E、21°09'–29°19' N之间。作为我国地形第一级与第二级海拔阶梯的过渡区域, 其西北端经横断山与青藏高原接壤, 南部则经云贵高原逐渐过渡至低海拔热带沟谷雨林(杨一光, 1990)。复杂多样的地形和气候孕育了云南省丰富的生物多样性, 其中包含了种类繁多的爬行动物。

云南省爬行动物多样性很早就引起了国内外学者的关注。自19世纪后期开始, 欧美博物学者陆续进入云南考察, 描述发表了一系列爬行动物新物种(Anderson, 1878; Boulenger, 1890, 1918; Schmidt, 1925; Pope, 1935)。1949年后, 国内学者也开始着手于云南省爬行动物多样性的调查, 并陆续发表了不同区域的物种名录和生物地理区划研究(张玺和成庆泰, 1946; 黄祝坚, 1958; 杨大同等, 1978, 1980; 寇治通和刑一玲, 1987; 杨大同和饶定齐, 1992; 何晓瑞和周希琴, 2002; 何晓瑞等, 2002)。基于这些研究结果, 我国学者编写了数本云南省局部或全省范围的爬行动物专著, 如《高黎贡山地区两栖、爬行动物》(杨大同等, 1978)、《横断山区两栖爬行动物》(赵尔宓和杨大同, 1997)和《云南两栖爬行动物》(杨大

同和饶定齐, 2008)。近期, 云南省也汇编更新了省内生物多样性物种名录(孙航和高正文, 2016, 2017)。这些志书和编目为研究云南省爬行动物多样性奠定了重要基础。其中, 《云南两栖爬行动物》是迄今为止对云南省爬行动物多样性记述、讨论最详尽的著作, 共记录云南省爬行动物2目16科70属162种, 位列列同时期我国各省份首位。

近年来, 随着分类学研究手段的不断进步和本底调查力度逐渐加大, 我国爬行动物分类研究进展迅速, 大量新物种陆续被发现描述, 分类系统不断更新完善(蔡波等, 2015; 王凯等, 2020)。但是已知物种在不同省区的具体分布情况仍缺乏及时、系统的更新, 其中新物种涌现、物种分类变更频繁的云南省(王凯和蒋珂, 2016; 王凯和陈宏满, 2017; 王凯等, 2018), 其信息滞后情况尤为突出, 这样的信息滞后严重制约了相关部门制定生物多样性保护决策的准确性和科学性。

本文在《云南两栖爬行动物》(杨大同和饶定齐, 2008)的基础上, 结合我国爬行动物更新名录(王凯等, 2020)和近期发表的研究成果, 汇总更新了截至2021年12月31日云南省现生、原生爬行动物名录,

并对云南省爬行动物地理区划进行了更新调整。同时, 结合《中国生物多样性红色名录·脊椎动物(第三卷): 爬行动物》(王跃招等, 2021)及相关研究, 分析了云南省爬行动物的受威胁特点, 并对分类的研究方向和物种保护提出了建议。

## 1 研究方法

以《云南两栖爬行动物》(杨大同和饶定齐, 2008)为基础, 综合考虑《云南省爬行动物调查及补充名录》(赵尔宓和江耀明, 1966)、《中国动物志·爬行纲(第一卷): 总论, 龟鳖目, 鳄形目》(张孟闻等, 1998)、《中国动物志·爬行纲(第二卷): 有鳞目·蜥蜴亚目》(赵尔宓等, 1999)、《中国动物志·爬行纲(第三卷): 有鳞目·蛇亚目》(赵尔宓等, 1998)、《云南省爬行动物区系及地理区划》(何晓瑞和周希琴, 2002)、《云南省生物物种名录(2016版)》(孙航和高正文, 2016)、《云南省生物物种红色名录(2017版)》(孙航和高正文, 2017)、《西南野生动物图鉴: 爬行动物卷》(饶定齐, 2020)等名录和研究著作, 结合近期更新的爬行动物分类体系(王凯等, 2020)和截至2021年12月31日已正式发表的最新研究文献和报道, 收录了符合《国际动物物种命名法》有关要求的有效物种和分类变动, 对云南省现生、原生爬行动物名录进行更新。

由于王凯等(2020)对截至2019年底的我国爬行动物分类变更已做了详细解释, 因此本文对2019年前发生的高阶元分类变更仅进行了汇总, 未对具体变更理由再行赘述。此外, 本文对已发表研究著作(杨大同和饶定齐, 2008; 孙航和高正文, 2016, 2017; 饶定齐, 2020)中分类鉴定或分布信息存疑的物种进行了核查: 对分类变动后仍遗留有未定种群, 最初报道无标本凭证、但在云南周边省份或邻国边境区域确有分布的物种, 本研究以存疑方式进行收录; 而对于有研究已论证移除, 或最初报道无相关标本凭证、且在云南省周边区域均无分布的物种, 则予以讨论和移除。

物种受威胁数据参考《中国生物多样性红色名录·脊椎动物(第三卷): 爬行动物》(王跃招等, 2021), 其中受威胁等级为易危(VU)、濒危(EN)或极危(CR)的物种视为“受威胁”。国家重点保护野生动物的保护等级引自最新的《国家重点保护野生动物名录》

(<http://www.forestry.gov.cn/main/5461/20210205/122418860831352.html>)。由于《国家重点保护野生动物名录》将巨蜥科(Varanidae)物种整体纳入国家I级保护, 因此对于因分类意见不同而未以具体物种形式出现在《国家重点保护野生动物名录》中的伊江巨蜥(*Varanus irrawadicus*)和暗影巨蜥(*V. nebulosus*), 均以国家I级保护动物进行标注。

爬行动物区划以《中国自然地理: 动物地理》(中国自然地理编辑委员会, 1979)、《云南两栖爬行动物》(杨大同和饶定齐, 2008)、《云南省爬行动物区系及地理区划》(何晓瑞和周希琴, 2002)为基础, 依据更新后的物种分类和分布数据进行统计。物种分布信息以地理区为单位转换为相异度矩阵, 后用邻接法(neighbor-joining; Saitou & Nei, 1987)构建生物地理区之间的关系。为避免物种模式产地信息被用于盗猎(Stuart et al, 2006), 对于模式产地位于云南的物种, 本文仅以模式产地对应的动物地理区进行统计, 并未列出具体地点信息。

## 2 结果

截至2021年12月31日, 云南省共记录爬行动物2目25科82属235种, 包括龟鳖目4科12属16种, 有鳞目蜥蜴亚目6科20属72种, 蛇亚目15科50属147种(附录1)。

### 2.1 分类变动

#### 2.1.1 高阶元分类变动(表1, 表2)

基于最新的分类系统学研究, 将《云南两栖爬行动物》(杨大同和饶定齐, 2008)中的科、属高阶元分类单元进行了调整, 新增10科, 即两头蛇科(Calamariidae)、食螺蛇科(Dipsadidae)、水蛇科(Homalopsidae)、屋蛇科(Lamprophiidae)、水游蛇科(Natricidae)、钝头蛇科(Pareidae)、斜鳞蛇科(Pseudoxenodontidae)、剑蛇科(Sibynophiidae)、闪皮蛇科(Xenodermatidae)和地龟科(Geoemydidae)。

对其中22个属的分类地位进行了调整: 将龟属(*Chinemys*)作为拟水龟属(*Mauremys*)的次定同物异名; 锯缘摄龟属(*Pyxidae*)为闭壳龟属(*Cuora*)的次定同物异名; 地蜥属(*Platyplacopus*)为草蜥属(*Takydromus*)的次定同物异名; 链蛇属(*Dinodon*)为白环蛇属(*Lycodon*)的次定同物异名; 乌梢蛇属(*Zaocys*)为鼠蛇属(*Ptyas*)的次定同物异名; 钩盲蛇



属(*Ramphotyphlops*)和盲蛇属(*Typhlops*)分别为印度盲蛇属(*Indotyphlops*)和东南亚盲蛇属(*Argyrophis*)的次定同物异名; 原石龙子属(*Eumeces*)物种移至 *Plestidon*属, 中文名保持不变; 原南蜥属(*Mabuya*)物种移至 *Eutropis*, 中文名保持不变; 原蛇蜥属(*Ophisaurus*)物种移至脆蛇蜥属(*Dopasia*); 原广义竹叶青属(*Trimeresurus sensu lato*)拆分为狭义竹叶青属(*Trimeresurus sensu stricto*)、绿蝮属(*Viridovipera*)和坡普蝮属(*Popeia*); 将弯趾虎属(*Cyrtopodion*)拆分, 恢复裸趾虎属(*Cytodactylus*); 将树蜥属(*Calotes*)拆分, 恢复拟树蜥属(*Pseudocalotes*); 将广义攀蜥属(*Japalura sensu lato*)拆分, 恢复龙蜥属(*Diploderma*); 废除原颈棱蛇属(*Macropisthodon*)和华游蛇属(*Sinonatrix*), 其分别为*Pseudagkistrodon* (中文名保持“颈棱蛇属”不变)和环游蛇属(*Trimerodytes*)的次定同物异名; 将广义锦蛇属(*Elaphe sensu lato*)拆分为狭义锦蛇属(*Elaphe sensu stricto*)、颌腔蛇属(*Coelognathus*)、紫灰蛇属(*Oreocryptophis*)、玉斑蛇属(*Euprepiophis*)和树栖锦

表1 与《云南两栖爬行动物》(杨大同和饶定齐, 2008)相比, 本名录新增的爬行动物科级高阶分类单元, 以及因新纪录物种而新增的属级新纪录。

Table 1 Comparing to the most recent book, *Amphibia and Reptilia of Yunnan* (Yang & Rao, 2008), new family and new generic records of reptilian fauna added to Yunnan Province, China in this current study.

分类阶元 Taxonomic level	中文名 Chinese common name	学名 Scientific name	文献 Literature
科 Family	两头蛇科	Calamariidae	Zaher et al, 2019
	食螺蛇科	Dipsadidae	
	水游蛇科	Natricidae	
	斜鳞蛇科	Pseudoxenodontidae	
	剑蛇科	Sibynophiidae	
	闪皮蛇科	Xenodermatidae	Wiens et al, 2008; Zaher et al, 2009;
	水蛇科	Homalopsidae	Pyron et al, 2011, 2013
	屋蛇科	Lamprophiidae	
	钝头蛇科	Pareidae	
	地龟科	Geoemydidae	Barley et al, 2010
属 Genus	拟须唇蛇属	<i>Parafimbrios</i>	Cai et al, 2020

表2 本名录较《云南两栖爬行动物》(杨大同和饶定齐, 2008)收录的属级分类变动。其中原属学名、原属中文名、原种学名、原种中文名指《云南两栖爬行动物》中使用的名称, 而修订后属学名、修订后属中文名、修订后种学名、修订后种中文名指本名录采用的名称。“-”指无变化。

Table 2 Generic taxonomic changes of the reptilian fauna of Yunnan Province, China comparing to the book, *Amphibia and Reptilia of Yunnan*, by Yang and Rao (2008). The original generic name, previously used Chinese common names, and original species name refer to the names used by Yang and Rao (2008), and the revised names are the ones accepted by the current study. “-” indicates no change on the Chinese common name.

原属学名 Generic synonym	原属中文名 Previous Chinese common name of the genus	原种学名 Previous scientific name of the species	原种中文名 Previous Chinese common name of the species	修订后属学名 Revised scientific name of the genus	修订后属中文名 Current Chinese common name of the genus	修订后种学名 Revised scientific name of the species	修订后种中文名 Current Chinese common name of the species	文献 Literature
<i>Amphiesma</i>	腹链蛇属	<i>A. atemporalis</i>	无颞鳞腹链蛇	<i>Hebius</i>	东亚腹链蛇属	<i>H. atemporale</i>	-	Guo et al, 2014
		<i>A. bitaeniatus</i>	黑带腹链蛇			<i>H. bitaeniatus</i>	-	
		<i>A. boulengeri</i>	白眉腹链蛇			<i>H. boulengeri</i>	-	
		<i>A. clerki</i>	克氏腹链蛇			<i>H. clerki</i>	-	
		<i>A. craspedogaster</i>	锈链腹链蛇			<i>H. craspedogaster</i>	-	
		<i>A. johannis</i>	棕网腹链蛇			<i>H. johannis</i>	-	
		<i>A. khasiensis</i>	卡西腹链蛇			<i>H. khasiensis</i>	-	
		<i>A. modesta</i>	腹斑腹链蛇			<i>H. modestum</i>	-	
		<i>A. optatum</i>	丽纹腹链蛇			<i>H. optatum</i>	-	
		<i>A. octolineatum</i>	八线腹链蛇			<i>H. octolineatum</i>	-	
		<i>A. popei</i>	坡普腹链蛇			<i>H. popei</i>	-	
		<i>A. sauteri</i>	棕黑腹链蛇			<i>H. sauteri</i>	-	
		<i>A. venningi</i>	缅北腹链蛇			<i>H. venningi</i>	-	
<i>Pararhabdophis</i>	异纹蛇属	<i>P. chapaensis</i>	沙坝异纹蛇			<i>H. chapaensis</i>	沙坝腹链蛇	Ren et al, 2018

表2 (续) Table 2 (continued)

原属学名 Generic synonym	原属中文名 Previous Chinese common name of the genus	原种学名 Previous scientific name of the species	原种中文名 Previous Chinese common name of the species	修订后属学名 Revised scientific name of the genus	修订后属中文名 Current Chinese common name of the genus	修订后种学名 Revised scientific name of the species	修订后种中文名 Current Chinese common name of the species	文献 Literature
<i>Calotes</i>	树蜥属	<i>C. kakhienensis</i>	蚌西树蜥	<i>Pseudocalotes</i>	拟树蜥属	<i>P. kakhienensis</i>	蚌西拟树蜥	Mahony, 2010; Wang et al, 2019a
		<i>C. microlepis</i>	细鳞树蜥			<i>P. microlepis</i>	细鳞拟树蜥	
<i>Chinemys</i>	龟属	<i>C. reevesii</i>	乌龟	<i>Mauremys</i>	拟水龟属	<i>M. reevesii</i>	—	Spinks et al, 2004
<i>Dinodon</i>	链蛇属	<i>D. flavozonatum</i>	黄链蛇	<i>Lycodon</i>	白环蛇属	<i>L. flavozonatus</i>	—	Guo et al, 2013; Siler et al, 2013
		<i>D. rufozonatum</i>	赤链蛇			<i>L. rufozonatus</i>	—	
		<i>D. septentrionalis chapaensis</i>	白链蛇			<i>L. chapaensis</i>	沙坝白环蛇	
<i>Elaphe</i>	锦蛇属	<i>E. pasina</i>	绿锦蛇	<i>Gonyosoma</i>	树栖锦蛇属	<i>G. prasinum</i>	—	Chen et al, 2014
		<i>E. frenata</i>	灰腹绿锦蛇			<i>G. frenatum</i>	—	
		<i>E. mandarina</i>	玉斑锦蛇	<i>Euprepophis</i>	玉斑蛇属	<i>E. mandarinus</i>	—	
		<i>E. porphyracea</i>	紫灰锦蛇	<i>Oreocryptophis</i>	紫灰蛇属	<i>O. porphyraceus</i>	—	
		<i>E. radiata</i>	三索锦蛇	<i>Coelognathus</i>	颌腔蛇属	<i>C. radiatus</i>	—	
<i>Enhydris</i>	水蛇属	<i>E. plumbea</i>	铅色水蛇	<i>Hypsiscopus</i>	铅色蛇属	<i>H. plumbea</i>	—	Murphy & Voris, 2014
<i>Eumeces</i>	石龙子属	<i>E. chinensis</i>	中国石龙子	<i>Plestidon</i>	—	<i>P. chinensis</i>	—	Griffith et al, 2000; Schmitz et al, 2004; Brandley et al, 2005, 2012; Pyron et al, 2013
		<i>E. elegans</i>	蓝尾石龙子			<i>P. elegans</i>	—	
<i>Japalura</i>	攀蜥属	<i>J. brevicauda</i>	短尾攀蜥	<i>Diploderma</i>	龙蜥属	<i>D. brevicauda</i>	短尾龙蜥	Wang et al, 2019a
		<i>J. dymondi</i>	裸耳攀蜥			<i>D. dymondi</i>	裸耳龙蜥	
		<i>J. fasciata</i>	横纹攀蜥			<i>D. fasciatum</i>	横纹龙蜥	
		<i>J. fasciata</i>	翡翠攀蜥			<i>D. iadinum</i>	翡翠龙蜥	
		<i>J. splendida</i>	丽纹攀蜥			<i>D. splendidum</i>	丽纹龙蜥	
		<i>J. slowinskii</i>	贡山攀蜥			<i>D. slowinskii</i>	贡山龙蜥	
		<i>J. varcoae</i>	昆明攀蜥			<i>D. varcoae</i>	昆明龙蜥	
		<i>J. vela</i>	帆背攀蜥			<i>D. vela</i>	帆背龙蜥	
		<i>J. yulongensis</i>	玉龙攀蜥			<i>D. yulongense</i>	玉龙龙蜥	
		<i>J. yunnanensis</i>	云南攀蜥			<i>D. yunnanense</i>	云南龙蜥	
		<i>J. bapoensis</i>	独龙江攀蜥	<i>Pseudocalotes</i>	拟树蜥属	<i>P. kingdonwardi bapoensis</i>	西藏拟树蜥巴坡亚种	
<i>Mabuya</i>	南蜥属	<i>M. longicaudata</i>	长尾南蜥	<i>Eutropis</i>	—	<i>E. longicaudata</i>	—	Ota & Huang, 2000; Mausefeld et al, 2002; Pyron et al, 2013
		<i>M. multifasciata</i>	多线南蜥			<i>E. multifasciata</i>	—	
<i>Macropisthodon</i>	颈棱蛇属	<i>M. rudis</i>	颈棱蛇	<i>Pseudagkistrodon</i>	—	<i>P. rudis</i>	—	Takeuchi et al, 2018
<i>Oligodon</i>	小头蛇属	<i>O. bella</i>	方花小头蛇	<i>Archelaphe</i>	方花蛇属	<i>A. bella</i>	方花蛇	Schulz et al, 2011
<i>Opisthotropis</i>	后棱蛇属	<i>O. praemaxillaris</i>	老挝后棱蛇	<i>Paratapinophis</i>	副后棱蛇属	<i>P. praemaxillaris</i>	老挝副后棱蛇	Ren et al, 2018
<i>Ophisaurus</i>	蛇蜥属	<i>O. gracilis</i>	细脆蛇蜥	<i>Dopasia</i>	脆蛇蜥属	<i>D. gracilis</i>	—	Conrad et al, 2011; Nguyen et al, 2011; Pyron et al, 2013
		<i>O. harti</i>	脆蛇蜥			<i>D. harti</i>	—	

表2 (续) Table 2 (continued)

原属学名 Generic synonym	原属中文名 Previous Chinese common name of the genus	原种学名 Previous scientific name of the species	原种中文名 Previous Chinese common name of the species	修订后属学名 Revised scientific name of the genus	修订后属中文名 Current Chinese common name of the genus	修订后种学名 Revised scientific name of the species	修订后种中文名 Current Chinese common name of the species	文献 Literature
<i>Platyplacopus</i>	地蜥属	<i>P. intermedius</i>	峨眉地蜥	<i>Takydromus</i>	草蜥属	<i>T. intermedius</i>	峨眉草蜥	Arnold, 1997; Lin et al, 2002; Pyron et al, 2013
<i>Pyxidae</i>	锯缘摄龟属	<i>P. mouhotii</i>	锯缘摄龟	<i>Cuora</i>	闭壳龟属	<i>C. mouhotii</i>	—	Stuart & Parham, 2004; Zhang et al, 2008
<i>Ptychozoon</i>	伞虎属	<i>P. bannaense</i>	版纳伞虎	<i>Gekko</i>	壁虎属	<i>G. bannaense</i>	—	Wood et al, 2020; Uetz et al, 2021
<i>Rhabdops</i>	黄腹杆蛇属	<i>R. bicolor</i>	黄腹杆蛇	<i>Smithophis</i>	杆蛇属	<i>S. bicolor</i>	—	Giri et al, 2019
<i>Rhynchophis</i>	尖喙蛇属	<i>R. boulengeri</i>	尖喙蛇	<i>Gonyosoma</i>	树栖锦蛇属	<i>G. boulengeri</i>	—	Chen et al, 2014
<i>Ramphotyphlops</i>	钩盲蛇属	<i>R. braminus</i>	钩盲蛇	<i>Indotyphlops</i>	印度盲蛇属	<i>I. braminus</i>	—	Pyron & Wallach, 2014
<i>Sinonatrix</i>	华游蛇属	<i>S. aequifasciata</i>	环纹华游蛇	<i>Trimerodytes</i>	环游蛇属	<i>T. aequifasciatus</i>	—	Ren et al, 2019
		<i>S. percarinata</i>	乌华游蛇			<i>T. percarinatus</i>	—	
		<i>S. yapingi</i>	景东华游蛇			<i>T. yapingi</i>	—	
		<i>S. yunnanensis</i>	云南华游蛇			<i>T. yunnanensis</i>	—	
<i>Trimeresurus</i>	竹叶青属	<i>T. albolabris</i>	白唇竹叶青蛇	—	—	<i>T. albolabris</i>	—	
		<i>T. stejnegeri</i>	福建竹叶青蛇	<i>Viridovipera</i>	绿蝮属	<i>V. stejnegeri</i>	—	Malhotra & Thorpe, 2004; 郭鹏, 2005; Dawson et al, 2008; Guo & Wang, 2011
		<i>T. yunnanensis</i>	云南竹叶青蛇			<i>V. yunnanensis</i>	—	
		<i>T. gumprechtii</i>	冈氏竹叶青蛇			<i>V. gumprechtii</i>	—	
		<i>T. popeiorum</i>	坡普竹叶青蛇	<i>Popeia</i>	坡普蝮属	<i>P. popeiorum</i>	—	
<i>Typhlops</i>	盲蛇属	<i>T. diardii</i>	大盲蛇	<i>Argyrophis</i>	东南亚盲蛇属	<i>A. diardii</i>	—	Pyron & Wallach, 2014
<i>Atretium</i>	滇西蛇属	<i>A. yunnanensis</i>	滇西蛇	<i>Fowlea</i>	渔游蛇属	<i>F. yunnanensis</i>	—	Purkayastha et al, 2018; Cheng et al, 2021
<i>Xenochrophis</i>	异色蛇属	<i>X. piscator</i>	渔游蛇			<i>F. piscator</i>	—	
		<i>X. flavipunctatus</i>	黄斑渔游蛇			<i>F. flavipunctatus</i>	—	
<i>Zaocys</i>	乌梢蛇属	<i>Z. carinatus</i>	黑网乌梢蛇	<i>Ptyas</i>	鼠蛇属	<i>P. carinata</i>	—	David & Das, 2004; Utiger et al, 2005
		<i>Z. dhumnades</i>	乌梢蛇			<i>P. dhumnades</i>	—	
		<i>Z. nigromarginatus</i>	黑线乌梢蛇			<i>P. nigromarginata</i>	—	

蛇属(*Gonyosoma*); 将原后棱蛇属(*Opisthotropis*)拆分, 独立出环游蛇属(*Trimerodytes*); 从小头蛇属(*Oligodon*)中拆分出方花蛇属(*Archelaphe*); 将广义腹链蛇属(*Amphiesma sensu lato*)拆分为狭义腹链蛇属(*Amphiesma sensu stricto*)和东亚腹链蛇属(*Hebius*); 从水蛇属(*Enhydria*)中独立出铅色蛇属(*Hypsiscopus*); 以*Smithophis*替换我国原记录的*Rhabdops*, 中文名修订为“杆蛇属”(表2)。

依据最新研究, 新增收录1属。[Cai等\(2020\)](#)报道的中国新纪录物种老挝拟须唇蛇属(*Parafimbrios lao*), 代表了拟须唇蛇属在我国的新纪录, 本研究予以收录(表1)。另将2属列为次定同物异名。[Wood等\(2020\)](#)利用简化基因组数据构建壁虎科(Gekkonidae)

系统演化关系, 确认原伞虎属(*Ptychozoon*)与壁虎属(*Gekko*)互不成单系, 故将伞虎属视为壁虎属的次定同物异名, 本研究采纳其观点。因此, 版纳伞虎(*Ptychozoon bannaense*)转移至壁虎属, 即*Gekko bannaense*, 而其物种中文名保持不变。[Cheng等\(2021\)](#)结合分子和形态数据, 支持[Purkayastha等\(2018\)](#)的结论, 确认我国原异色蛇属(*Xenochrophis*)物种均隶属于*Fowlea*属, 而我国并无异色蛇属分布, *Fowlea*属的中文名则沿用惯用名称“渔游蛇属”。

另依据最新研究, 移除滇西蛇属(*Atretium*)在我国的分布纪录。[Cheng等\(2021\)](#)确认分布于我国云南的滇西蛇(*Atretium yunnanensis*)嵌于渔游蛇属(*Fowlea*)内部, 且其属征不明显, 故将其转移至渔

游蛇属, 即*Fowlea yunnanensis*, 本研究采纳其观点, 涉及物种的中文名保持不变(表2)。

### 2.1.2 种级分类变动(表3-5; 附录2, 附录3)

与先前名录相比, 确认新增82种, 以存疑方式收录21种, 移除23种在云南省的分布纪录, 未采纳一项种级分类变动。

#### 2.1.2.1 确认新增物种(表3)

本名录较2008年出版的《云南两栖爬行动物》(杨大同和饶定齐, 2008)新增82种: 其中4种为《云南两栖爬行动物》的补遗, 即横纹龙蜥(*Diploderma fasciatum*) (Ota, 2000; Wang et al, in press)、缅北蜥

虎(*Hemidactylus aquilonius*) (McMahan & Zug, 2007)、南方链蛇(*Lycodon meridionalis*) (Orlov & Ryabov, 2004; 罗键等, 2010)、暗影巨蜥(杨大同和刘万兆, 1994; Böhme & Ziegler, 1997); 3种为国内已记录物种在云南省的新纪录, 即福建华珊瑚蛇(*Sinomicrurus kelloggi*) (王德青等, 2015)、尖喙蛇(*Gonyosoma boulengeri*) (杨典成等, 2018)和纹尾斜鳞蛇(*Pseudoxenodon stejnegeri*) (李操等, 2009); 其余75种为2008年后描述的新物种、新恢复有效性的物种、新提升的亚种或已知种在国内的首次记录。

表3 自2008年以来云南省新增爬行动物物种。物种描述时间/恢复有效性时间在2008年之前但未被《云南两栖爬行动物》(杨大同和饶定齐, 2008)收录的, 属于“遗漏物种”; 而描述时间/恢复有效性时间在2008年及以后的, 属于“新描述物种”和“新恢复有效性物种”。

Table 3 New records of reptiles of Yunnan Province comparing to the book, *Amphibia and Reptilia of Yunnan*, by Yang & Rao (2008). For species that were described or resurrected before the publication of *Amphibia and Reptilia of Yunnan* in 2008, they were considered as “neglected records”; for any species that were described or resurrected after 2008, they were considered as either “new species” or “newly resurrected species”, respectively.

新纪录类型 Record type	科 Family	中文名 Chinese common name	学名 Scientific name	分布区 Distribution	备注 Comment	文献 Literature
2008年后新 描述物种 New species described after 2008	鬣蜥科 Agamidae	刘氏棘蜥	<i>Acanthosaura liui</i>	滇东南 South- eastern Yunnan	原记录丽棘蜥( <i>Acanthosaura lepidogaster</i> ) 的滇东南种群为该种误定 Previously misidentified as <i>Acanthosaura lepidogaster</i> in southeastern Yunnan	Liu et al, 2020a
	鬣蜥科 Agamidae	铜壁关棘蜥	<i>Acanthosaura tongbiguanensis</i>	滇西 Western Yunnan	原记录丽棘蜥( <i>Acanthosaura lepidogaster</i> ) 的滇西种群为该种误定 Previously misidentified as <i>Acanthosaura lepidogaster</i> in western Yunnan	Liu & Rao, 2019
	闪皮蛇科 Xenodermidae	屏边脊蛇	<i>Achalinus pingbianensis</i>	滇东南 South- eastern Yunnan		Li et al, 2020
	闪皮蛇科 Xenodermidae	杨氏脊蛇	<i>Achalinus yangdatongi</i>	滇东南 South- eastern Yunnan		Hou et al, 2021a
	蝰科 Viperidae	白头蝰	<i>Azemiops kharini</i>	滇南 Southern Yunnan	原记录 <i>Azemiops feae</i> 的滇中种群为该 种误定 Previously misidentified as <i>Azemiops feae</i> in central Yunnan	Orlov et al, 2013
	眼镜蛇科 Elapidae	素贞环蛇	<i>Bungarus suzhenae</i>	滇西 Western Yunnan	原记录银环蛇( <i>Bungarus multicinctus</i> ) 的滇西种群为该种误定 Previously misidentified as <i>Bungarus</i> <i>multicinctus</i> in western Yunnan	Chen et al, 2021b
	两头蛇科 Calamariidae	贡山两头蛇	<i>Calamaria andersoni</i>	滇西 Western Yunnan		Yang & Zheng, 2018
	壁虎科 Gekkonidae	镇康裸趾虎	<i>Cyrtodactylus zhenkangensis</i>	滇西 Western Yunnan		Liu & Rao, 2021a
	壁虎科 Gekkonidae	滇西裸趾虎	<i>Cyrtodactylus dianxiensis</i>	滇西 Western Yunnan	原记录卡西裸趾虎( <i>Cyrtodactylus khasiensis</i> ) 的误定 Previously misidentified as <i>Cyrtodactylus khasiensis</i>	Liu & Rao, 2021c
	壁虎科 Gekkonidae	古林箐裸趾虎	<i>Cyrtodactylus gulinqingensis</i>	滇南 Southern Yunnan		Liu S et al, 2021b
	壁虎科 Gekkonidae	河口裸趾虎	<i>Cyrtodactylus hekouensis</i>	滇东南 South- eastern Yunnan		Zhang YP et al, 2021
	壁虎科 Gekkonidae	成都壁虎	<i>Gekko cib</i>	滇东北 North- eastern Yunnan	原蹼趾壁虎( <i>Gekko subpalmatus</i> )的误定 Previously misidentified as <i>Gekko</i> <i>subpalmatus</i>	Lyu et al, 2021; 本研究 Present study



表3 (续) Table 3 (continued)

新纪录类型 Record type	科 Family	中文名 Chinese name	学名 Scientific name	分布区 Distribution	备注 Comment	文献 Literature
2008年后新 描述物种 New species described after 2008	水游蛇科 Natricidae	维西腹链蛇	<i>Hebius weixiensis</i>	滇西北 North- western Yunnan	原滇西北黑带腹链蛇( <i>Hebius bitaeniatus</i> ) 的误定 Previously misidentified as <i>Hebius</i> <i>bitaeniatus</i> in northwestern Yunnan	Hou SB et al, 2021b
	壁虎科 Gekkonidae	竹塘乡半叶趾虎	<i>Hemiphyllodactylus zhutangxiangensis</i>	滇南 Southern Yunnan		Agung et al, 2021
	游蛇科 Colubridae	沃氏过树蛇	<i>Dendrelaphis vogeli</i>	滇南 Southern Yunnan		Jiang et al, 2020
	鬣蜥科 Agamidae	敖闰龙蜥	<i>Diploderma aorun</i>	滇西北 North- western Yunnan	原记录草绿龙蜥( <i>Diploderma flaviceps</i> )的 金沙江部分种群为该种误定 Previously misidentified as <i>Diploderma flaviceps</i> in the Jinsha Valley in northwestern Yunnan	Wang et al, 2021a
	鬣蜥科 Agamidae	短尾龙蜥	<i>Diploderma breviceauda</i>	滇西北 North- western Yunnan	原记录草绿龙蜥( <i>Diploderma flaviceps</i> )的 金沙江部分种群为该种误定 Previously misidentified as <i>Diploderma flaviceps</i> in the Jinsha Valley in northwestern Yunnan	Manthey et al, 2012
	鬣蜥科 Agamidae	丽喉龙蜥	<i>Diploderma formosgulae</i>	滇西北 North- western Yunnan	原记录草绿龙蜥( <i>Diploderma flaviceps</i> )的 金沙江部分种群为该种误定 Previously misidentified as <i>Diploderma flaviceps</i> in the Jinsha Valley in northwestern Yunnan	Wang et al, 2021b
	鬣蜥科 Agamidae	翡翠龙蜥	<i>Diploderma iadinum</i>	滇西北 North- western Yunnan	原记录草绿龙蜥( <i>Diploderma flaviceps</i> )的 澜沧江部分种群为该种误定 Previously recorded as <i>Diploderma flaviceps</i> in the Lancang Valley in northwestern Yunnan	Wang K et al, 2016, 2019b
	鬣蜥科 Agamidae	勐海龙蜥	<i>Diploderma menghaiense</i>	滇西北 North- western Yunnan	原记录云南龙蜥( <i>Diploderma yunnanense</i> ) 的滇南种群为该种误定 Previously misidentified as <i>Diploderma yunnanense</i> in southern Yunnan	Liu et al, 2020b
	鬣蜥科 Agamidae	麒麟龙蜥	<i>Diploderma qilin</i>	滇西北 North- western Yunnan	原记录草绿龙蜥( <i>Diploderma flaviceps</i> )的 金沙江部分种群为该种误定 Previously misidentified as <i>Diploderma flaviceps</i> in the Jinsha Valley in northwestern Yunnan	Wang et al, 2021a
	鬣蜥科 Agamidae	贡山龙蜥	<i>Diploderma slowinskii</i>	滇西北 North- western Yunnan	原记录丽纹龙蜥( <i>Diploderma splendidum</i> ) 和裸耳龙蜥( <i>D. dymondi</i> )的滇西北怒江流 域种群为该种误定 Previously misidentified as <i>Diploderma splendidum</i> and <i>D. dymondi</i> in the Nu Valley in northwestern Yunnan	Rao et al, 2017
	鬣蜥科 Agamidae	帆背龙蜥	<i>Diploderma vela</i>	滇西北 North- western Yunnan	原记录草绿龙蜥( <i>Diploderma flaviceps</i> )的 澜沧江部分种群为该种误定 Previously misidentified as <i>Diploderma</i> <i>flaviceps</i> in the Lancang Valley in northwestern Yunnan	Wang et al, 2015, 2019b
	鬣蜥科 Agamidae	玉龙龙蜥	<i>Diploderma yulongense</i>	滇西北 North- western Yunnan	原记录草绿龙蜥( <i>Diploderma flaviceps</i> )的 金沙江部分种群为该种误定 Previously misidentified as <i>Diploderma flaviceps</i> in the Jinsha Valley in northwestern Yunnan	Manthey et al, 2012; Wang et al, 2017
	壁虎科 Gekkonidae	版纳伞虎	<i>Gekko bannaense</i>	滇南 Southern Yunnan		Wang YY et al, 2016
	壁虎科 Gekkonidae	金江壁虎	<i>Gekko jinjiangensis</i>	滇西北 North- western Yunnan	原多疣壁虎( <i>Gekko japonicus</i> )滇西北横断 山的纪录为该种误定 Previously misidentified as <i>Gekko japonicus</i> in northwestern Yunnan	Hou YM et al, 2021
	游蛇科 Colubridae	蓝眼绿锦蛇	<i>Gonyosoma coeruleum</i>	滇南、滇中、滇东 南、滇西 Southern, central, southeastern, and western Yunnan	原绿锦蛇( <i>Gonyosoma prasinum</i> )的误定 Previously misidentified as <i>Gonyosoma</i> <i>prasinum</i>	Liu S et al, 2021a
	水游蛇科 Natricidae	盐边腹链蛇	<i>Hebius yanbianensis</i>	滇中 Central Yunnan		Liu et al, 2018; 本研究 Present study
	游蛇科 Colubridae	锯纹白环蛇	<i>Lycodon serratus</i>	滇西北 North- western Yunnan		Wang et al, 2021c



表3 (续) Table 3 (continued)

新纪录类型 Record type	科 Family	中文名 Chinese common name	学名 Scientific name	分布区 Distribution	备注 Comment	文献 Literature
2008年后新 描述物种 New species described after 2008	游蛇科 Colubridae	贡山白环蛇	<i>Lycodon gongshan</i>	滇西 Western Yunnan	原双全白环蛇( <i>Lycodon fasciatus</i> )滇西部 分种群的误定 Previously misidentified as <i>Lycodon fasciatus</i> in western Yunnan	Vogel & Luo, 2011; Guo et al, 2015b
	游蛇科 Colubridae	东川白环蛇	<i>Lycodon synaptor</i>	滇东北 North- eastern Yunnan		Vogel & David, 2010
	钝头蛇科 Pareidae	贡山钝头蛇	<i>Pareas vindumi</i>	滇西 Western Yunnan		Vogel, 2015; Yang et al, 2021
	钝头蛇科 Pareidae	伯仲钝头蛇	<i>Pareas geminatus</i>	滇南 Southern Yunnan	原缅甸钝头蛇( <i>Pareas hamptoni</i> )滇南种群 的误定 Previously misidentified as <i>Pareas</i> <i>hamptoni</i> in southern Yunnan	Ding et al, 2020
	钝头蛇科 Pareidae	勐腊钝头蛇	<i>Pareas menglaensis</i>	滇南 Southern Yunnan	原记录棱鳞钝头蛇( <i>Pareas carinatus</i> )为该 种的误定 Previously misidentified as <i>Pareas carinatus</i>	Wang P et al, 2020
	钝头蛇科 Pareidae	黑顶钝头蛇	<i>Pareas nigriceps</i>	滇中 Central Yunnan		Guo & Deng, 2009
	钝头蛇科 Pareidae	雪林钝头蛇	<i>Pareas xuelinensis</i>	滇南 Southern Yunnan		Liu & Rao, 2021b
	蝰科 Viperidae	盈江竹叶青蛇	<i>Popeia yingjiangensis</i>	滇西 Western Yunnan	原记录白唇竹叶青蛇( <i>Trimeresurus</i> <i>albolabris</i> )的滇西种群为该种误定 Previously misidentified as <i>Trimeresurus</i> <i>albolabris</i> in western Yunnan	Chen et al, 2019
	水游蛇科 Natricidae	线纹溪蛇	<i>Smithophis linearis</i>	滇西 Western Yunnan		Vogel et al, 2020a
	食螺蛇科 Dipsadidae	香格里拉温泉蛇	<i>Thermophis shangrila</i>	滇西北 North- western Yunnan		Peng et al, 2014
	蝰科 Viperidae	饰尾竹叶青蛇	<i>Trimeresurus caudornatus</i>	滇西 Western Yunnan	原记录白唇竹叶青蛇( <i>Trimeresurus</i> <i>albolabris</i> )的滇西种群为该种误定 Previously misidentified as <i>Trimeresurus</i> <i>albolabris</i> in western Yunnan	Chen et al, 2020
	蝰科 Viperidae	滇南竹叶青蛇	<i>Trimeresurus guoi</i>	滇南 Southern Yunnan	原记录白唇竹叶青蛇( <i>Trimeresurus</i> <i>albolabris</i> )的滇南种群为该种误定 Previously misidentified as <i>Trimeresurus</i> <i>albolabris</i> in southern Yunnan	Chen et al, 2021a
	水游蛇科 Natricidae	景东华游蛇	<i>Trimerodytes yapingi</i>	滇东南 South- eastern Yunnan		Guo et al, 2019
遗漏物种 Previously neglected records	闪皮蛇科 Xenodermidae	美姑脊蛇	<i>Achalinus meiguensis</i>	滇东北 North- eastern Yunnan		寇治通和王晓佳, 2003
	鬣蜥科 Agamidae	横纹龙蜥	<i>Diploderma fasciatum</i>	滇东北、滇东南 Northeastern and southeastern Yunnan	四川龙蜥( <i>Diploderma szechwanense</i> )为横 纹龙蜥的次定同物异名 Previously misidentified as <i>Diploderma</i> <i>szechwanense</i> , which is a junior synonym of <i>D. fasciatum</i>	王凯等, 2019; Ota, 2000; Wang et al, in press
	壁虎科 Gekkonidae	缅北蜥虎	<i>Hemidactylus aquilonius</i>	滇西 Western Yunnan	原滇西的原尾蜥虎( <i>Hemidactylus</i> <i>bowringii</i> )应是缅北蜥虎的误定 Previously misidentified as <i>Hemidactylus</i> <i>bowringii</i> in western Yunnan	McMahan & Zug, 2007
	游蛇科 Colubridae	南方链蛇	<i>Lycodon meridionalis</i>	滇东南 South- eastern Yunnan	原记录黄链蛇( <i>Lycodon flavozonatus</i> )滇东 南种群的误定 Previously recorded as <i>Lycodon flavozonatus</i> in southeastern Yunnan	Orlov & Ryabov, 2004; 罗键等, 2010
	巨蜥科 Varanidae	暗影巨蜥	<i>Varanus nebulosus</i>	滇东南 South- eastern Yunnan	原记录越南巨蜥( <i>V. vietnamensis</i> )为该种 的次定同物异名 The previously recorded species <i>Varanus vietnamensis</i> is a junior synonym of <i>V. nebulosus</i>	Böhme & Ziegler, 1997; Böhme, 2003
新恢复有效 性种 Newly resurrected species	水游蛇科 Natricidae	黄斑渔游蛇	<i>Fowlea flavipunctatus</i>	滇东南 South- eastern Yunnan	原记录渔游蛇( <i>Fowlea piscator</i> )滇东南种 群的误定 Previously misidentified as <i>Fowlea piscator</i> in southeastern Yunnan	Vogel & David, 2006, 2012
	壁虎科 Gekkonidae	黑疣大壁虎	<i>Gekko reevesii</i>	滇东南 South- eastern Yunnan	原大壁虎( <i>Gekko gekko</i> )滇东南种群为该 种误定 Previously misidentified as <i>Gekko</i> <i>gecko</i> in southeastern Yunnan	Rösler et al, 2011; Qin et al, 2012

表3 (续) Table 3 (continued)

新纪录类型 Record type	科 Family	中文名 Chinese common name	学名 Scientific name	分布区 Distribution	备注 Comment	文献 Literature
新恢复有效 性种 Newly resurrected species	水游蛇科 Natricidae	克氏腹链蛇	<i>Hebius clerki</i>	滇西 Western Yunnan	原记录双带腹链蛇( <i>Hebius parallelum</i> )的 误定 Previously misidentified as <i>Hebius parallelum</i>	David et al, 2015  Hou et al, 2021b
	水游蛇科 Natricidae	腾冲腹链蛇	<i>Hebius septemlineatus</i>	滇西 Western Yunnan	原滇西南八线腹链蛇( <i>Hebius octolineatus</i> )的误定 Previously misidentified as <i>Hebius octolineatus</i> in southwestern Yunnan	
	钝头蛇科 Pareidae	克钦钝头蛇	<i>Pareas andersonii</i>	滇西 Western Yunnan	原横纹钝头蛇( <i>Pareas margaritophorus</i> )的 滇西种群为该种的误定 Previously misidentified as <i>Pareas margaritophorus</i> in western Yunnan	
	钝头蛇科 Pareidae	横斑钝头蛇	<i>Pareas macularius</i>	滇南、滇东南 Southern and southeastern Yunnan	原横纹钝头蛇( <i>Pareas margaritophorus</i> )的 滇南、滇东南种群为该种误定 Previously misidentified as <i>Pareas margaritophorus</i> in southern and southeastern Yunnan	
新恢复有效 性且提升亚 种 Resurrected and then elevated from subspecies status	游蛇科 Colubridae	沙坝白环蛇	<i>Lycodon chapaensis</i>	滇西、滇南、滇东 南 Western, southern, and southeastern Yunnan	原记录白链蛇( <i>Lycodon septentrionalis</i> )的 误定 Previously misidentified as <i>Lycodon septentrionalis</i> in Yunnan	Wang et al, 2021c
亚种提升 Elevated from subspecies status	钝头蛇科 Pareidae	昆明钝头蛇	<i>Pareas niger</i>	滇中、滇东南 Central and southeastern Yunnan	原记录中国钝头蛇( <i>Pareas chinensis</i> )的昆 明种群为该种误定; 此外蒙自钝头蛇( <i>P. mengziensis</i> )为该种的次定同物异名 Previously misidentified as <i>Pareas chinensis</i> in Kunming; <i>P. mengziensis</i> is a junior synonym of <i>P. niger</i>	Liu & Rao, 2021b
	钝头蛇科 Pareidae	云南钝头蛇	<i>Pareas yunnanensis</i>	滇中 Central Yunnan	原纪录中国钝头蛇( <i>Pareas chinensis</i> )的大 理种群为该种误定 Previously misidentified as <i>Pareas chinensis</i> in Dali	
	眼镜蛇科 Elapidae	云南环蛇	<i>Bungarus wanghaotingi</i>	滇中、滇南、滇东 南 Central, southern, and southeastern Yunnan	原记录银环蛇( <i>Bungarus multicinctus</i> )的 大部分种群为该种的误定 Most previously identified populations of <i>Bungarus multicinctus</i> in Yunnan are <i>B. wanghaotingi</i>	Chen et al, 2021b
	壁虎科 Gekkonidae	昌宁半叶趾虎	<i>Hemiphyllodactylus changningensis</i>	滇西 Western Yunnan	原云南半叶趾虎昌宁亚种 ( <i>Hemiphyllodactylus yunnanensis changningensis</i> )的提升 Elevated from subspecies <i>H. yunnanensis changningensis</i>	Guo WB et al, 2015
	壁虎科 Gekkonidae	金平半叶趾虎	<i>Hemiphyllodactylus jinpingensis</i>	滇东南 South-eastern Yunnan	原云南半叶趾虎金平亚种 ( <i>Hemiphyllodactylus yunnanensis jinpingensis</i> )的提升 Elevated from subspecies <i>H. yunnanensis jinpingensis</i>	Grismer et al, 2013
	壁虎科 Gekkonidae	龙陵半叶趾虎	<i>Hemiphyllodactylus longlingensis</i>	滇西 Western Yunnan	原云南半叶趾虎龙陵亚种 ( <i>Hemiphyllodactylus yunnanensis longlingensis</i> )的提升 Elevated from subspecies <i>H. yunnanensis longlingensis</i>	Grismer et al, 2013
	眼镜蛇科 Elapidae	孟加拉眼镜蛇	<i>Naja kaouthia</i>	全省大部分地区 Most parts of Yunnan	原记录眼镜蛇孟加拉亚种( <i>Naja naja kaouthia</i> )的提升 Elevated from subspecies <i>Naja naja kaouthia</i>	赵尔宓, 2006

表3 (续) Table 3 (continued)

新纪录类型 Record type	科 Family	中文名 Chinese common name	学名 Scientific name	分布区 Distribution	备注 Comment	文献 Literature
亚种提升 Elevated from subspecies status	蝰科 Viperidae	台湾烙铁头蛇	<i>Ovophis makazayazaya</i>	滇中、滇东南、滇东北 Central, southeastern, and northeastern Yunnan	原山烙铁头蛇台湾亚种( <i>Ovophis monticola makazayazaya</i> )的提升; 除高黎贡山种群外, 原记录山烙铁头蛇的种群为该种的误定 Elevated from subspecies <i>Ovophis monticola makazayazaya</i> ; previously misidentified as <i>O. monticola</i> in Yunnan (except in the Gaoligong Mountains in western Yunnan)	Malhotra et al, 2011; 郭鹏个人通讯, 2022
	蝰科 Viperidae	察隅烙铁头蛇	<i>Ovophis zayuensis</i>	滇西 Western Yunnan	原山烙铁头蛇察隅亚种( <i>Ovophis monticola zayuensis</i> )的提升; 原记录山烙铁头蛇的高黎贡山种群为该种的误定 Elevated from subspecies <i>Ovophis monticola zayuensis</i> ; previously misidentified as <i>O. monticola</i> from Gaoligong Mountains in western Yunnan	赵尔宓, 1995, 2006; Gumprecht et al, 2004; Malhotra et al, 2011; 郭鹏个人通讯, 2022
	水游蛇科 Natricidae	北方颈槽蛇	<i>Rhabdophis helleri</i>	滇西、滇中、滇南 滇东南、滇东北 Western, central, parts of southern, southeastern, and northeastern Yunnan	原红脖颈槽蛇北方亚种( <i>Rhabdophis subminiatus helleri</i> )的提升; 原记录红脖颈槽蛇在滇西、滇中、滇东南和部分滇南的种群为该种误定 Elevated from subspecies <i>Rhabdophis subminiatus helleri</i> ; previously misidentified as <i>R. subminiatus</i> in western, central, southeastern, and parts of southern Yunnan	Liu Q et al, 2021
	水游蛇科 Natricidae	泰国颈槽蛇	<i>Rhabdophis siamensis</i>	滇南部分区域 Parts of southern Yunnan	原红脖颈槽蛇泰国亚种( <i>Rhabdophis subminiatus siamensis</i> )的提升; 原记录红脖颈槽蛇滇南的部分种群为该种误定 Elevated from subspecies <i>Rhabdophis subminiatus siamensis</i> ; previously misidentified as <i>R. subminiatus</i> in parts of southern Yunnan	David & Vogel, 2021; Liu Q et al, 2021
已知种新纪录 New records of recognized species	游蛇科 Colubridae	泰国林蛇	<i>Boiga siamensis</i>	滇西 Western Yunnan		Huang et al, 2021
	鬣蜥科 Agamidae	伊江树蜥	<i>Calotes irawadi</i>	滇西 Western Yunnan	原记录变色树蜥( <i>Calotes versicolor</i> )的滇西种群为该种误定 Previously misidentified as <i>Calotes versicolor</i> in western Yunnan	Liu S et al, 2021c
	地龟科 Geoemydidae	欧氏摄龟	<i>Cyclemys oldhami</i>	滇西、滇南 Western and southern Yunnan	原齿缘摄龟( <i>Cyclemys dentata</i> )纪录为该种的误定; 滇南摄龟( <i>C. tiannanensis</i> )是该种的次定同物异名 Previously misidentified as <i>Cyclemys dentata</i> ; the previously recorded <i>C. tiannanensis</i> is a junior synonym of <i>C. oldhami</i>	周婷和李丕鹏, 2013
	壁虎科 Gekkonidae	瓦氏裸趾虎	<i>Cyrtodactylus wayakonei</i>	滇南 Southern Yunnan		袁思棋和饶定齐, 2011
	游蛇科 Colubridae	银山过树蛇	<i>Dendrelaphis ngansonensis</i>	滇西 Western Yunnan	原记录过树蛇( <i>Dendrelaphis pictus</i> )的误定 Previously misidentified as <i>Dendrelaphis pictus</i>	Jiang et al, 2020
	鬣蜥科 Agamidae	沙坝龙蜥	<i>Diploderma chapaense</i>	滇东南 South-eastern Yunnan	原记录草绿龙蜥( <i>Diploderma flaviceps</i> )在大理云龙的种群, 以及云南龙蜥( <i>D. yunnanense</i> )景东的种群为该种误定 Previously misidentified as <i>Diploderma flaviceps</i> in Dali and as <i>D. yunnanense</i> in Jingdong	Wang et al, 2018; 王凯等, 2019
	水游蛇科 Natricidae	沙坝腹链蛇	<i>Hebius chapaensis</i>	滇东南、滇南 Southeastern and southern Yunnan		Ren et al, 2018; 任金龙个人通讯, 2021
	游蛇科 Colubridae	菱斑小头蛇	<i>Oligodon catenatus</i>	滇东南 South-eastern Yunnan		何疆海和饶定齐, 2009
	游蛇科 Colubridae	束纹小头蛇	<i>Oligodon fasciolatus</i>	滇南 Southern Yunnan	原记录管状小头蛇( <i>Oligodon cyclurus</i> )的误定 Previously misidentified as <i>Oligodon cyclurus</i>	张君等, 2011

表3 (续) Table 3 (continued)

新纪录类型 Record type	科 Family	中文名 Chinese common name	学名 Scientific name	分布区 Distribution	备注 Comment	文献 Literature
已知种新纪录 New records of recognized species	游蛇科 Colubridae	条纹小头蛇	<i>Oligodon hamptoni</i>	滇西 Western Yunnan		Lee et al, 2021
	游蛇科 Colubridae	泰北小头蛇	<i>Oligodon joynsoni</i>	滇南 Southern Yunnan		Jiang et al, 2012
	闪皮蛇科 Xenodermidae	老挝拟须唇蛇	<i>Parafimbrios lao</i>	滇南 Southern Yunnan		Cai et al, 2020
	蝰科 Viperidae	坡普竹叶青蛇	<i>Popeia popeorum</i>	滇南 Southern Yunnan		Guo et al, 2015a
	蝰科 Viperidae	冈氏竹叶青蛇	<i>Viridovipera gumprechtii</i>	滇南 Southern Yunnan		Guo et al, 2009
	斜鳞蛇科 Pseudoxenodontidae	纹尾斜鳞蛇	<i>Pseudoxenodon stejnegeri</i>	滇东北 North-eastern Yunnan		李操等, 2009
	眼镜蛇科 Elapidae	福建华珊瑚蛇	<i>Sinomicrurus kelloggi</i>	滇东南 South-eastern Yunnan		孙国政等, 2015; 王德青等, 2015
	游蛇科 Colubridae	尖喙蛇	<i>Gonyosoma boulengeri</i>	滇东南 South-eastern Yunnan		杨典成等, 2018

2.1.2.2 存疑分布纪录(表4; 附录2, 附录3)

以存疑方式收录21种。其中12种在近期名录/书籍中新增, 确有可能分布于云南, 但文献中未提供依据标本和/或云南省内具体分布范围, 即百色闭壳龟(*Cuora mccordi*)、周氏闭壳龟(*C. zhoui*)、黄喉拟水龟(*Mauremys mutica*)、喉褶蜥(*Ptyctolaemus gularis*)、鹰氏壁虎(*Gekko adleri*)、尖吻蝮(*Deinagkistrodon acutus*)、广西林蛇(*Boiga guangxiensis*)、百花锦蛇(*Elaphe moellendorffi*)、灰腹绿锦蛇(*Gonyosoma frenatum*)、环纹华游蛇(*Trimerodytes aequifasciatus*)、缅甸原矛头蝮(*Protobothrops kaulbacki*)和泰国圆斑蝰(*Daboia siamensis*); 1种的分类地位存疑, 以复合种进行收录, 即白环蛇定为白环蛇-白枕白环蛇复合种(*Lycodon aulicus-capucinus* complex); 近期种级分类学变动后, 尚未完全解决物种分类问题的6种, 包括舟山眼镜蛇(*Naja atra*)、银环蛇(*Bungarus multicinctus*)、中国壁虎(*Gekko chinensis*)、中国钝头蛇(*Pareas chinensis*)、黄链蛇(*Lycodon flavozonatus*)和变色树蜥(*Calotes versicolor*); 有实体标本依据, 但标本来源不确定的2种, 即乌龟(*Mauremys reevesii*)和四眼斑水龟(*Sacalia quadriocellata*)。

2.1.3 未采纳种级分类变动

未采纳近期关于白唇树蜥(*Calotes mystaceus*)的种级分类变动。Wagner等(2021)将原白唇树蜥拆分为4种, 其中我国云南分布种群被厘定为一新种, 即*Calotes goetzi*。然而Wagner等(2021)的研究结果

不仅未能解决白唇树蜥种组内支系间的关系, 其结果中支系间的分子遗传距离还随地理距离增加而渐增, 明显属于广布种内种群遗传结构; 同时, Wagner等(2021)提出的色斑鉴别特征在个体之间变异明显, 并不能将其“新种”与已知种进行区分。因此, 本研究认为Wagner等(2021)对白唇树蜥的分类厘定证据不足, 未采纳其结论。

2.1.4 移除已知物种的云南省分布纪录(表5, 附录2, 附录3)

由于最初报道缺乏实体标本依据、云南种群为孤立的异域分布且高度存疑, 本研究在此移除3种在云南的分布, 即金头闭壳龟(*Cuora aurocapitata*)、亚洲鳖(*Amyda cartilaginea*)和越南异鳞蜥(*Pseudocophotis kontumensis*)。

经核查标本, 移除5种在云南省的分布纪录。原蹼趾壁虎(*Gekko subpalmatus*)、多疣壁虎(*G. japonicus*)、短尾蝮(*Gloydius brevicauda*)、平头腹链蛇(*Herpetoreas platyceps*)和老挝副后棱蛇(*Paratapinophis praemaxillaris*)在云南报道的纪录为误定, 实际为成都壁虎(*Gekko cib*)、粗疣壁虎(*G. scabridus*)、雪山蝮(*Gloydius monticola*)、维西腹链蛇(*Hebius weixiensis*)以及景东华游蛇(*Trimerodytes yapingi*)的误定。

此外, 依据近年来已发表的研究结果(表5), 移除15种爬行动物在云南省的分布纪录, 包括马来环蛇(*Bungarus candidus*)、马来闭壳龟(*Cuora amboinensis*)、齿缘摄龟(*Cyclemys dentata*)、卡西裸



表4 存疑保留的云南省爬行动物分布纪录。具体存疑原因讨论见附录2, 部分纪录标本照片见附录3。

Table 4 Retained suspicious records of reptile species in Yunnan. Detailed explanations and discussion see Appendix 2, and photos and morphological data of some of the corresponding voucher specimens see Appendix 3.

中文名 Chinese common name	学名 Scientific name	存疑原因 Reason of suspicion	存疑记录点 Suspicious distribution in Yunnan	记录云南分布文献 Literature for the Yunnan record	辅助佐证文献 Literature supporting potential or suspicious distribution in Yunnan
广西林蛇	<i>Boiga guangxiensis</i>	近期名录新增, 但未提供标本依据、解释或分布范围; 但云南省周边区域有分布纪录 Recent addition by Sun and Gao (2016, 2017), which lacks voucher information, distribution localities in Yunnan, and additional explanation. However, there are confirmed distribution in adjacent regions	未知 Unknown	孙航和高正文, 2016, 2017	赵尔宓等, 1998; 赵尔宓, 2006; Pham et al, 2020
银环蛇	<i>Bungarus multicinctus</i>	分类厘定后存在剩余种群, 尚未确认其具体分类地位 Taxonomic status of some previously identified populations of <i>B. multicinctus</i> in Yunnan remained unexamined after recent species revision	滇东南 Southeastern Yunnan	赵尔宓等, 1998; 杨大同和饶定齐, 2008	Chen et al, 2021b
变色树蜥	<i>Calotes versicolor</i>	分类厘定后存在剩余种群, 尚未确认其具体分类地位 Taxonomic status of some previously identified populations of <i>C. versicolor</i> in Yunnan remained unexamined after recent species revision	滇东南 Southeastern Yunnan	赵尔宓等, 1999; 何晓瑞和周希琴, 2002; 杨大同和饶定齐, 2008; 孙航和高正文, 2016, 2017	Gowande et al, 2021
百色闭壳龟	<i>Cuora mccordi</i>	近期名录新增, 但未提供标本依据、解释或分布范围; 但云南省周边区域有分布纪录 Recent addition by Sun and Gao (2016, 2017), which lacks voucher information, distribution localities in Yunnan, and additional explanation. However, there are confirmed distribution in adjacent provinces/neighborhood countries	未知 Unknown	何晓瑞和周希琴, 2002; 孙航和高正文, 2016, 2017	周婷和李丕鹏, 2013
周氏闭壳龟	<i>Cuora zhoui</i>	近期名录新增, 但未提供标本依据、解释或分布范围; 但云南省周边区域有分布纪录 Recent addition by Sun and Gao (2016, 2017), which lacks voucher information, distribution localities in Yunnan, and additional explanation. However, there are confirmed distribution in adjacent provinces/neighborhood countries	未知 Unknown	何晓瑞和周希琴, 2002; 孙航和高正文, 2016, 2017	周婷和李丕鹏, 2013
泰国圆斑蛙	<i>Daboia siamensis</i>	近期名录新增, 但未提供标本依据、解释或分布范围; 但云南省周边区域有分布纪录 Recent addition by Sun and Gao (2016, 2017), which lacks voucher information, distribution localities in Yunnan, and additional explanation. However, there are confirmed distribution in adjacent provinces/neighborhood countries	未知 Unknown	杨大同和饶定齐, 2008	赵尔宓等, 1998; 赵尔宓, 2006; Thorpe et al, 2007
尖吻蝥	<i>Deinagkistrodon acutus</i>	近期名录新增, 但未提供标本依据、解释或分布范围; 但云南省周边区域有分布纪录 Recent addition by Sun and Gao (2016, 2017), which lacks voucher information, distribution localities in Yunnan, and additional explanation. However, there are confirmed distribution in adjacent provinces/neighborhood countries	未知 Unknown	孙航和高正文, 2016, 2017	赵尔宓等, 1998; 赵尔宓, 2006; Pham et al, 2017
百花锦蛇	<i>Elaphe moellendorffi</i>	近期名录新增, 但未提供标本依据、解释或分布范围; 但云南省周边区域有分布纪录 Recent addition by Sun and Gao (2016, 2017), which lacks voucher information, distribution localities in Yunnan, and additional explanation. However, there are confirmed distribution in adjacent provinces/neighborhood countries	未知 Unknown	孙航和高正文, 2016, 2017	赵尔宓等, 1998; 赵尔宓, 2006; Nguyen et al, 2009
鹰氏壁虎	<i>Gekko adleri</i>	近期名录新增, 但未提供标本依据、解释或分布范围; 但云南省周边区域有分布纪录 Recent addition by Sun and Gao (2016, 2017), which lacks voucher information, distribution localities in Yunnan, and additional explanation. However, there are confirmed distribution in adjacent provinces/neighborhood countries	未知 Unknown	孙航和高正文, 2016, 2017	Nguyen et al, 2013

表4 (续) Table 4 (continued)

中文名 Chinese common name	学名 Scientific name	存疑原因 Reason of suspicion	存疑记录点 Suspicious distribution in Yunnan	记录云南分布文献 Literature for the Yunnan record	辅助佐证文献 Literature supporting potential or suspicious distribution in Yunnan
中国壁虎	<i>Gekko chinensis</i>	复合种的孤立纪录, 分类地位存疑 Allopatric records of a species that is known to be a complex; taxonomic status of the Yunnan populations remain unknown	滇中、滇东北、滇南 Central, northeastern, and southern Yunnan	Ota et al, 1995; 赵尔宓和杨大同, 1997; 何晓瑞和周希琴, 2002; 杨大同和饶定齐, 2008; Nguyen et al, 2013	Nguyen et al, 2009
灰腹绿锦蛇	<i>Gonyosoma frenatum</i>	近期名录新增, 却未提供标本依据、解释或分布范围; 但云南省周边区域有分布纪录 Recent addition by Sun and Gao (2016, 2017), which lacks voucher information, distribution localities in Yunnan, and additional explanation. However, there are confirmed distribution in adjacent provinces/neighborng countries	未知 Unknown	孙航和高正文, 2016, 2017	Nguyen et al, 2009
白环蛇-白枕白环蛇复合种	<i>Lycodon aulicus-capucinus</i> complex	物种有效性和物种界限不明确, 云南省种群分类地位不确定 Species validity and species boundary remain unknown of the two species; the taxonomic status of the Yunnan populations remain unknown	滇西 Western Yunnan		Wang et al, 2021c
黄链蛇	<i>Lycodon flavozonatus</i>	分类厘定后存在剩余种群, 尚未确认其具体分类地位 Taxonomic status of some previously identified populations remained unexamined after recent species revision	滇西 Western Yunnan	赵尔宓等, 1998; Orlov & Ryabov, 2004; 杨大同和饶定齐, 2008	
黄喉拟水龟	<i>Mauremys mutica</i>	先前纪录均未提供标本依据或解释; 但云南省周边区域有分布纪录 All previous records lack voucher information, distribution localities in Yunnan, and additional explanation; confirmed distribution in adjacent provinces/neighborng countries	滇南 Southern Yunnan	Wink et al, 2001; Spinks et al, 2004; 本研究 Present study	Nguyen et al, 2009
乌龟	<i>Mauremys reevesii</i>	早期即有研究怀疑纪录有效性; 已有标本采集地点位于人口密集的市郊, 同时长期未有野生个体发现; 生物地理区系与乌龟确认分布区差异较大 Early studies have already questioned the validity of the record from Yunnan; all known vouchers were collected from heavily populated suburb, and no confirmed wild individuals have been collected; Yunnan is outside of the known zoogeographic distribution of the species	滇中 Central Yunnan	Werner, 1924; Smith, 1935; 赵尔宓和杨大同, 1997; 张孟闻等, 1998; 何晓瑞和周希琴, 2002; 杨大同和饶定齐, 2008	
舟山眼镜蛇	<i>Naja atra</i>	种级分类变动后缺乏针对性研究, 云南种群分类地位不明确 Taxonomic status of some previously identified populations remained unexamined after recent species revision	未知 Unknown	赵尔宓, 2006; 杨大同和饶定齐, 2008	
中国钝头蛇	<i>Pareas chinensis</i>	分类厘定后存在剩余种群, 尚未确认其具体分类地位 Taxonomic status of some previously identified populations remained unexamined after recent species revision	滇东南 Southeastern Yunnan	赵尔宓和杨大同, 1997; 赵尔宓等, 1998; 杨大同和饶定齐, 2008; Guo et al, 2020; Liu & Rao, 2021b	
缅北原矛头蝮	<i>Protobothrops kaulbacki</i>	近期名录新增, 却未提供标本依据、解释或分布范围; 但云南省周边区域有分布纪录 Recent addition by Sun and Gao (2016, 2017), which lacks voucher information, distribution localities in Yunnan, and additional explanation; confirmed distribution in adjacent provinces/neighborng countries	未知 Unknown	孙航和高正文, 2016, 2017	
喉褶蜥	<i>Ptyctolaemus gularis</i>	近期名录新增, 却未提供标本依据、解释或分布范围; 但云南省周边区域有分布纪录 Recent addition by Sun and Gao (2016, 2017), which lacks voucher information, distribution localities in Yunnan, and additional explanation; confirmed distribution in adjacent provinces/neighborng countries	未知 Unknown	孙航和高正文, 2016, 2017	Schulte et al, 2004

表4 (续) Table 4 (continued)

中文名 Chinese common name	学名 Scientific name	存疑原因 Reason of suspicion	存疑记录点 Suspicious distribution in Yunnan	记录云南分布文献 Literature for the Yunnan record	辅助佐证文献 Literature supporting potential or suspicious distribution in Yunnan
四眼斑 水龟	<i>Sacalia quadriocellata</i>	近期名录新增, 但未提供标本依据、解释或分布范围; 核查后虽确有标本, 但标本采集地点位于人口密集的市郊, 同时之后长期未有野生个体发现 Recent addition by Sun and Gao (2016, 2017), which lacks voucher information, distribution localities in Yunnan, and additional explanation. Although we located a museum voucher from Kunming, but it was collected from a heavily populated suburb in recent years, and no wild individuals have been found since then	滇中 Central Yunnan	孙航和高正文, 2016, 2017	Nguyen et al, 2009
环纹华 游蛇	<i>Trimerodytes aequifasciatus</i>	近期名录新增, 但未提供标本依据、解释或分布范围; 但云南省周边区域有分布纪录 Recent addition by Sun and Gao (2016, 2017), which lacks voucher information, distribution localities in Yunnan, and additional explanation. However, there are confirmed distribution in adjacent provinces/neighborhood countries	未知 Unknown	孙航和高正文, 2016, 2017	赵尔宓等, 1998; 赵尔宓, 2006; Nguyen et al, 2009

趾虎 (*Cyrtodactylus khasiensis*)、滑腹龙蜥 (*Diploderma laevis*)、草绿龙蜥 (*D. flaviceps*)、绿锦蛇 (*Gonyosoma prasinum*)、双带腹链蛇 (*Hebius parallelum*)、管状小头蛇 (*Oligodon cyclurus*)、四线小头蛇 (*O. taeniatus*)、山烙铁头蛇 (*Ovophis monticola*)、棱鳞钝头蛇 (*Pareas carinatus*)、黑背白环蛇 (*Lycodon ruhstrati*)、白链蛇 (*L. septentrionalis*) 和红脖颈槽蛇 (*Rhabdophis subminiatus*)。

2.2 云南省爬行动物区划(表6)

云南省爬行动物区系以东洋界成分为主, 有 221 种, 占物种总数的 94.0%; 少数物种为东洋-古北界广布, 有 14 种, 占 6.0%; 无古北界物种(附录 1)。

结合气候、自然地理和爬行动物组成特点, 将云南省爬行动物地理划分为 6 个动物地理区: 即滇西北横断山区(Northwestern Hengduan Mountains of Yunnan)、滇西山地区(Western Hills of Yunnan)、滇南山地区(Southern Hills of Yunnan)、滇东南山地区(Southeastern Hills of Yunnan)、滇中高原区(Northern and Central Yunnan Plateau)以及滇东北山地区(Northeastern Hills of Yunnan) (图 1)。其中, 滇东北山地区和滇南山地区的划分与先前研究一致(何晓瑞和周希琴, 2002; 杨大同和饶定齐, 2008); 但本研究对滇西北横断山区、滇西山地区、滇中高原区和滇东南山地区的范围进行了调整。

就横断山区而言, 本研究以澜沧江-怒江生物地理分界线(Mekong Salween Divide) (Ward, 1921)

为界, 将西部的怒江和独龙江流域从横断山区划入滇西山地区。澜沧江-怒江分界线两侧的物种组成和种群基因结构差异显著, 是藏东-横断山物种区系的分界线(Geissmann et al, 2011; Päckert et al, 2012; Luo et al, 2017)。从爬行动物区系看, 界线以西的区系成分与藏东南和缅甸的区系成分接近, 多为热带-亚热带林地型物种, 而界线以东的物种则为典型的横断山成分, 或为高原物种, 或为干热河谷物种(表 6)。

就滇西山地区、滇中高原区和滇东南山地区而言, 先前研究将哀牢山和无量山或划入滇西山地区(何晓瑞和周希琴, 2002), 或划入滇中高原区(杨大同和饶定齐, 2008)。然而不论是栖息地环境(哀牢山-无量山以湿润的季风常绿阔叶林为主; 滇西山以热带季雨林为主, 滇中高原以干燥的针叶林和针阔叶混交林为主; 姜汉桥, 1980)还是物种组成(哀牢山-无量山为热带、亚热带物种; 滇西物种成分接近藏东南和缅甸掸邦高原(Shan Plateau); 滇中高原则以云贵高原物种为主), 哀牢山和无量山都与滇西山、滇中高原差异巨大。相比而言, 哀牢山-无量山系与滇东南的黄连山系自然衔接, 栖息地生境和物种成分更为接近, 因此本研究将哀牢山和无量山所在区域划归入滇东南山地区(表 6)。

以邻接法构建的区域关系显示滇中高原区与滇东北山地区关系接近, 而滇南山地区与滇东南山地区关系更为接近(图 1)。

表5 相比以往云南省爬行动物名录移除的爬行动物物种。具体移除原因的讨论见附录2和附录3。

Table 5 Removed records of reptile species comparing to previous checklists of reptilian fauna of Yunnan. For detailed explanations on the reasoning of removal, see Appendix 2 and 3.

中文名 Chinese common name	学名 Scientific name	云南省报道记录文献 Literature that records the species in Yunnan	移除原因 Reason of removal	备注 Comments	移除依据文献 Literature supporting the removal
亚洲鳖	<i>Amyda cartilaginea</i>	Kuchling, 1995; 孙航和高正文, 2016, 2017	云南最初报道所依据标本无确切产地, 邻国边境区域亦未有分布 The initial record lacks voucher specimens or detailed distribution in Yunnan; and it is not found in the bordering regions of neighboring countries	同时移除该种在我国的分布 Remove the record of the species from China	Kuchling, 1995; 张孟闻等, 1998; TTWG, 2021; 本研究 Present study
平头腹链蛇	<i>Herpetoreas platyceps</i>	杨大同和饶定齐, 2008	云南标本形态与本种不符, 实为维西腹链蛇 <i>Hebius weixiensis</i> 的误定 Morphological characters of the Yunnan specimen contradict to the diagnosis of <i>Herpetoreas platyceps</i> but match the diagnosis of <i>Hebius weixiensis</i>		车静等, 2020; 本研究 Present study
马来环蛇	<i>Bungarus candidus</i>	Xie et al, 2018	云南环蛇( <i>Bungarus wanghaotingi</i> )的误定 Misidentifications of <i>B. wanghaotingi</i>	同时移除该种在我国的分布 Remove the record of the species from China	Chen et al, 2021b
马来闭壳龟	<i>Cuora amboinensis</i>	Pope, 1935; 季维智, 1994; 杨大同和饶定齐, 2008	最初报道即无标本依据; 近期研究已否定该种在我国的分布 The initial record lacks voucher specimens; and recent studies have already removed the species from China	同时移除该种在我国的分布 Remove the record of the species from China	史海涛, 2011; 蔡波等, 2015
金头闭壳龟	<i>Cuora aurocapitata</i>	Ernst, 1988; 张孟闻等, 1998	最初报道即无标本依据, 且云南记录种群与已知确认种群异域分布, 已知分布区与云南相比生物地理区系差异较大 The initial record lacks voucher specimens; the recorded site in Yunnan is allopatric to the known distribution range of the species; and the Yunnan locality is in distinct zoogeographically from the confirmed range of <i>C. aurocapitata</i>		周婷和李丕鹏, 2013; 本研究 Present study
潘氏闭壳龟	<i>Cuora pani</i>	Ernst & McCord, 1987; McCord & Iverson, 1991; 杨大同和饶定齐, 2008; 周婷和李丕鹏, 2013; 孙航和高正文, 2016, 2017	最初记录标本来自宠物贸易, 具体来源不明; 该种已知分布区与云南种群异域分布, 且生物地理区系差异较大 The initial voucher specimens were from pet trades without confirmed locality information; the Yunnan population is allopatric to the confirmed populations of the species; and the Yunnan locality is distinct zoogeographically from the confirmed range of <i>C. pani</i>		本研究 Present study
齿缘摄龟	<i>Cyclermys dentata</i>	汤俊和宗愉, 1988; Kou, 1989; 杨大同和饶定齐, 2008; 孙航和高正文, 2016, 2017	欧氏摄龟( <i>C. oldhamii</i> )的误定 Misidentification of <i>C. oldhamii</i>		周婷和李丕鹏, 2013; 蔡波等, 2015
卡西裸趾虎	<i>Cyrtodactylus khasiensis</i>	赵尔宓等, 1999	滇西裸趾虎( <i>C. dianxiensis</i> )的误定 Misidentification of <i>C. dianxiensis</i>	同时移除该种在我国的分布 Remove the record of the species from China	Grismer et al, 2021; Liu & Rao, 2021c
草绿龙蜥	<i>Diploderma flaviceps</i>	赵尔宓和杨大同, 1997	同属多种龙蜥的误定 Misidentifications of several species of <i>Diploderma</i>		Manthey et al, 2012; Wang et al, 2015, 2016, 2017, 2019b, 2021a, b Wang et al, 2019b
滑腹龙蜥	<i>Diploderma laeviventre</i>	孙航和高正文, 2016, 2017; Rao et al, 2017; 饶定齐, 2020	误记 Misinterpretation of literature		
多疣壁虎	<i>Gekko japonicus</i>	赵尔宓和杨大同, 1997; 何晓瑞和周希琴, 2002; 杨大同和饶定齐, 2008; 孙航和高正文, 2016, 2017	金江壁虎( <i>G. jinjiangensis</i> )和粗疣壁虎( <i>G. scabridus</i> )的误定 Misidentifications of <i>G. jinjiangensis</i> and <i>G. scabridus</i>		Hou YM et al, 2021; 本研究 Present study
短尾蝮	<i>Gloydus brevicauda</i>	何晓瑞和周希琴, 2002	雪山蝮( <i>G. monticola</i> )的误定 Misidentification of <i>G. monticola</i>		本研究 Present study
绿锦蛇	<i>Gonyosoma prasinum</i>	Smith, 1935; 何晓瑞和周希琴, 2002; 杨大同和饶定齐, 2008	蓝眼绿锦蛇( <i>G. coeruleum</i> )的误定 Misidentification of <i>G. coeruleum</i>		Liu S et al, 2021a



表5 (续) Table 5 (continued)

中文名 Chinese common name	学名 Scientific name	云南省报道记录文献 Literature that records the species in Yunnan	移除原因 Reason of removal	备注 Comments	移除依据文献 Literature supporting the removal
双带腹链蛇	<i>Hebius parallellum</i>	杨大同和饶定齐, 2008	克氏腹链蛇( <i>H. clerki</i> )的误定 <i>H. clerki</i>	Misidentification of	David et al, 2015
黑背白环蛇	<i>Lycodon ruhstrati</i>	郭克疾等, 2007	同属其他物种的误定 multiple congeners	Misidentifications of	Wang et al, 2021c
白链蛇	<i>Lycodon septentrionalis</i>	杨大同等, 1978; 赵尔 宓和杨大同, 1997; 赵 尔宓等, 1998; 赵尔宓, 2006; 杨大同和饶定齐, 2008	沙巴白环蛇( <i>L. chapaensis</i> )的误定 Misidentifications of <i>L. chapaensis</i>		Wang et al, 2021c
管状小头蛇	<i>Oligodon cylurus</i>	黄祝坚, 1959; 寇治通, 1960; 赵尔宓和江耀明, 1966; 季维智, 1994; 杨 大同和饶定齐, 2008	束纹小头蛇( <i>O. fasciolatus</i> )的误定 Misidentifications of <i>O. fasciolatus</i>		张君等, 2011
四线小头蛇	<i>Oligodon taeniatus</i>	杨大同等, 1980; 赵尔 宓等, 1998	紫棕小头蛇( <i>O. cinereus</i> )的误定 of <i>O. cinereus</i>	Misidentifications	张君等, 2011
山烙铁头蛇	<i>Ovophis monticola</i>	赵尔宓和杨大同, 1997; 赵尔宓等, 1998; 何晓 瑞和周希琴, 2002; 杨 大同和饶定齐, 2008; 孙航和高正文, 2016, 2017	察隅烙铁头蛇( <i>O. zayuensis</i> )和台湾烙铁头蛇( <i>O. makazayazaya</i> )的误定 Misidentifications of <i>O. zayuensis</i> and <i>O. makazayazaya</i>		Malhotra et al, 2011; 郭鹏个人通 讯, 2022
棱鳞钝头蛇	<i>Pareas carinatus</i>	何晓瑞和周希琴, 2002; 杨大同和饶定齐, 2008; 孙航和高正文, 2016, 2017	勐腊钝头蛇( <i>P. menglaensis</i> )的误定 Misidentifications of <i>P. menglaensis</i>	同时移除该种在我 国的分布 Remove the record of the species from China	Wang et al, 2020
老挝副后棱 蛇	<i>Paratapinophis praemaxillaris</i>	赵尔宓等, 1998; 何晓 瑞和周希琴, 2002; 杨 大同和饶定齐, 2008	景东华游蛇( <i>Trimerodytes yapingi</i> )的误定 Misidentifications of <i>Trimerodytes yapingi</i>	同时移除该种在我 国的分布 Remove the record of the species from China	任金龙等, 2021
越南异鳞蜥	<i>Pseudocophotis kontumensis</i>	孙航和高正文, 2016, 2017	最初纪录即无标本依据, 且该种已知分布区与云 南生物地理区系差异较大 The initial record lacks voucher specimens; and the known distribution of the species is distinct from Yunnan zoogeographically	同时移除该种在我 国的分布 Remove the record of the species from China	Ananjeva et al, 2007; 本研究 Present study
红脖颈槽蛇	<i>Rhabdophis subminiatus</i>	赵尔宓和杨大同, 1997; 何晓瑞和周希琴, 2002; 杨大同和饶定齐, 2008; 孙航和高正文, 2016, 2017	北方颈槽蛇( <i>R. helleri</i> )和泰国颈槽蛇( <i>R. siamensis</i> ) 的误定 Misidentifications of <i>R. helleri</i> and <i>R. siamensis</i>	同时移除该种在我 国的分布 Remove the record of the species from China	David & Vogel, 2021; Liu Q et al, 2021

表6 云南省爬行动物地理区划概况

Table 6 Summary of zoogeographic division of Yunnan Province based on reptilian distributions

	滇西北横断山区 Northwestern Hengduan Mountains of Yunnan	滇西山地区 Western Hills of Yunnan	滇南山地区 Southern Hills of Yunnan	滇东南山地区 Southeastern Hills of Yunnan	滇中高原区 Northern and Central Yunnan Plateau	滇东北山地区 Northeastern Hills of Yunnan
范围描述 General range description	横断山主体, 西至怒山, 南至云 岭南端 Hengduan Mountains, west to Nu Mt., east to Yulong Mt., south to the southern range of Yunling Mt.	怒山为界, 东南至无量 山西侧 North to the Yunnan-Tibet border, south to Bangma-Daxue Mts., northeast to Nu Mt., and southeast to the west side of Wuliang Mt.	帮马山-无量山-哀 牢山构成的“八”字 形山系南侧的低海 拔区域 South to the “八” shaped range formed by Bangma, Wuliang, and Ailao Mts.	无量山-哀牢山山系, 红河流域, 以及滇 东南喀斯特地貌区 Wuliang-Ailao Mt. range, Honghe (=Red River) tributaries, and karst landscapes in southeastern Yunnan	苍山以东、哀牢山以 北、药山/牛栏江以 南, 依托滇东北 的广大云南高原区域 The main Yunnan Plateau region that is east of Cang Mt., north of Ailao Mt., south of Yao Mt. and Niulan River	药山/牛栏江以 北, 依托滇东北 五连峰 North of Yao Mt. and Niulan River, coincide with Wulian Mt. in the northeast Yunnan
大致经纬度 范围 General range in longitude and latitude	99°–101° E, 26.5°–29° N	97.5°–100.5° E, 23°–28.5° N	99°–102° E, 21°–23.5° N	100.5°–106° E, 22.5°–24.5° N	99°–104.5° E, 24°–27° N	103°–105° E, 27°–28.5° N

表6 (续) Table 6 (continued)

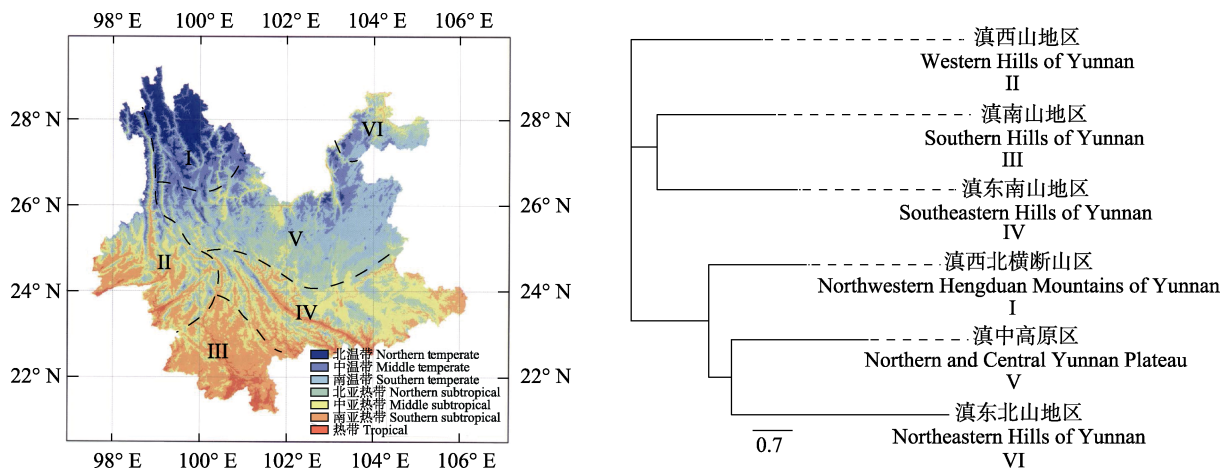
	滇西北横断山区 Northwestern Hengduan Mountains of Yunnan	滇西山地区 Western Hills of Yunnan	滇南山地区 Southern Hills of Yunnan	滇东南山地区 Southeastern Hills of Yunnan	滇中高原区 Northern and Central Yunnan Plateau	滇东北山地区 Northeastern Hills of Yunnan
对应行政区划 单位 Corresponding political administrative regions	迪庆藏族自治州、丽江 市、以及大理白族自治 州北部(剑川县、鹤庆 县) Diqing, Lijiang, northern parts of Dali (Jianchuan, Heqing counties)	怒江傈僳族自治州、德 宏傣族景颇族自治州、 保山市、大理白族自治 州西南部(云龙县、永平 县、巍山县)及临沧市 Nujiang, Dehong, Baoshan, southwestern Dali (Yunlong, Yongping, and Weishan counties), and Lincang	普洱市(除景东、景 谷县)和西双版纳 傣族自治州 Puer (except Jingdong and Jinggu counties) and Xishuangbanna	玉溪市南部(元江 县)、红河哈尼族彝 族自治州大部(除泸 西县、弥勒县)、普 洱市北部(景东、景 谷县)、楚雄彝族自治 州南部(双柏县)、 文山壮族苗族自治 州 Southern Yuxi (Yuanjiang County), Honghe (except Luxi and Mile counties), southern Chuxiong (Shuangbai County), northern Puer (Jingdong and Jinggu counties), and Wenshan	大理市中、东部(洱源 县、漾濞县、大理市、 宾川县、祥云县、弥 渡县)、楚雄彝族自治 州中北部(除双柏县 外所有县区)、昆明 市、昭通市南部(巧家 县)、玉溪市(峨山县 以东、以北)、曲靖市 以及红河哈尼族彝 族自治州北部(泸西 县、弥勒县) Central and eastern Dali (Eryuan, Yangbi, Dali City, Binchuan, Xiangyun, Midu counties), Chuxiong (except Shuangbai County), Kunming, southern Zhaotong (Qiaojia County), Yuxi (north and east of Eshan County), Qujing, and northern Honghe (Luxi and Mile counties)	昭通市大部(除 巧家县) Zhaotong (except Qiaojia County)
区域代表物种 Selected representative species of each region	翡翠龙蜥( <i>Diploderma iadinum</i> ), 敖闰龙蜥( <i>D. aorun</i> ), 麒麟龙蜥( <i>D. qilin</i> ), 丽喉龙蜥( <i>D. formosgulae</i> ), 玉龙龙 蜥( <i>D. yulongense</i> ), 短 尾龙蜥( <i>D. brevicauda</i> ), 帆背龙蜥( <i>D. vela</i> ), 山 滑蜥( <i>Scincella monti- cola</i> ), 香格里拉温泉蛇 ( <i>Thermophis shangrila</i> ), 雪山蝮( <i>Gloydus monti- cola</i> ), 乡城原矛头蝮 ( <i>Protobothrops xiang- chengensis</i> ), 锯纹白环 蛇( <i>Lycodon serratus</i> )	铜壁关棘蜥( <i>Acanthos- aura tongbiguanensis</i> ), 伊江树蜥( <i>Calotes irawadi</i> ), 绿背树蜥( <i>C. jerdoni</i> ), 白唇树蜥( <i>C. mystaceus</i> ), 西藏拟树 蜥( <i>Pseudocalotes kingdonwardi</i> ), 滇西裸 趾虎( <i>Cyrtodactylus dianxiensis</i> ), 盈江竹叶 青蛇( <i>Popeia yingjiangensis</i> ), 条纹小 头蛇( <i>Oligodon hamptoni</i> ), 察隅烙铁头 蛇( <i>Ovophis zayuensis</i> ), 喜山颈槽蛇 ( <i>Rhabdophis himalayanus</i> )	凹甲陆龟( <i>Manou- ria impressa</i> ), 版纳 伞虎( <i>Gekko banna- ense</i> ), 勐海龙蜥 ( <i>Diploderma meng- haiense</i> ), 金花蛇 ( <i>Chrysopelea ornata</i> ), 屏边脊蛇( <i>Achalinus vovetii</i> ), 景东 沃氏过树蛇( <i>Dendr- pingbianensis</i> ), 景东 腊钝头蛇( <i>Pareas yapingi</i> ), 云南两头 蛇( <i>Calamaria menglaensis</i> ), 泰国 颈槽蛇( <i>Rhabdophis siamensis</i> ), 闪鳞蛇 ( <i>Xenopeltis unicolor</i> ), 老挝拟须唇蛇 ( <i>Parafimbrios lao</i> ), 滇南竹叶青蛇 ( <i>Trimeresurus guoi</i> )	锯缘摄龟( <i>Cuora mouhotii</i> ), 斑鳖 ( <i>Rafetus swinhoei</i> ), 沙坝龙蜥( <i>D. chapa- ense</i> ), 刘氏棘蜥 ( <i>Acanthosaura liui</i> ), 屏边脊蛇( <i>Achalinus vovetii</i> ), 景东 华游蛇( <i>Trimerodytes yapingi</i> ), 云南两头 蛇( <i>Calamaria menglaensis</i> )	云南闭壳龟( <i>Cuora yunnanensis</i> ), 昆明 滑蜥( <i>Scincella barb- ouri</i> ), 云南半叶趾虎 ( <i>Hemiphyllodactylus yunnanensis</i> ), 裸耳龙 蜥( <i>Diploderma dym- ondi</i> ), 云南钝头蛇 ( <i>Pareas yunnanensis</i> ), 八线腹链蛇( <i>Hebius octolineatum</i> ), 盐边 腹链蛇( <i>H. yanbian- ensis</i> ), 东川白环蛇 ( <i>Lycodon synaptor</i> )	成都壁虎( <i>Gekko cib</i> ), 丽纹龙蜥 ( <i>Diploderma splendidum</i> ), 黑 脊蛇( <i>Achalinus spinalis</i> ), 美姑 脊蛇( <i>A. meigu- ensis</i> ), 赤链蛇 ( <i>Lycodon rufoz- onatus</i> ), 虎斑颈 槽蛇( <i>Rhabdophis tigrinus</i> )

2.3 云南省爬行动物分布特点和濒危现状(表7)

云南省爬行动物物种丰富, 但物种多样性在纬度空间的分布并不均匀, 随纬度升高, 物种多样性逐渐减少, 多样性集中分布于南部低纬度、水热条件充沛的滇西山地区、滇南山地区和滇东南山地3个地理区(表7)。这样的分布格局可以由年平均最低气温、年降水量等反映温度、湿度特征的环境指标来解释, 侧面反映了爬行动物依赖外界环境、喜暖湿而惧干冷的基础生物学特性(于晓东等, 2005)。受威胁物种和受保护物种的分布格局与整体多样性分布格

局类似, 主要集中分布于南部的3个地理区(表7)。

云南省非特有但国内仅见于云南的物种以及特有物种占比较高(77种国内仅见于云南省, 占全省已知物种总数的33%; 30种为云南省特有, 占全省已知物种总数的13%); 其中蜥蜴亚目特有物种的占比最高(16种, 占云南蜥蜴物种总数的22%), 而蛇亚目特有物种占比较低(13种, 9%); 龟鳖目仅有1种为云南特有, 占龟鳖目总物种数的6%。分类上, 国内仅见于云南省的物种和云南省特有物种主要集中于龙蜥属(*Diploderma*)和钝头蛇属(*Pareas*);



**图1** 云南省爬行动物地理区划示意图及区域关系。云南省气候带分布图摘自程建刚等(2009)。区域关系由物种分布相异度矩阵通过邻接法构建得出。左图爬行动物生物地理区的罗马数字代号与右图对应。  
**Fig. 1** Illustration of the zoogeographic division of Yunnan Province based on the data of reptile fauna, and the relationships among zoogeographic regions. The base map shows the climatic division of Yunnan, which was taken from Cheng et al, 2009. Regional relationships were inferred using Neighbor-joining method on the dissimilarity matrix of distribution data. The roman numerals in the left figure correspond to the same ones on the right.

而从生物地理区划上,云南省的特有物种则多集中于滇西北横断山区,国内仅见于云南省的物种则集中于滇南山地区(表7)。

共62种爬行动物的模式产地位于云南省内,其中蜥蜴亚目物种中模式产地位于云南的占比最高(28种,占云南省蜥蜴物种总数的39%),其次为蛇亚目(33种,22%)和龟鳖目(1种,6%)。就模式产地的空间分布而言,尽管云南爬行动物多样性集中于滇南的暖湿边境区域,但滇西北横断山却是物种模式产地比例最高的地理区(13个物种模式产地位于该地理区,占该区物种总数的41%) (表7)。

云南省爬行动物受威胁比例与全国总体水平相近,约34%的已评估物种为受威胁物种,远高于我国哺乳动物和鸟类的平均受威胁物种比例(蒋志刚等, 2016; Wang et al, 2021d),而仅见于云南的爬行动物物种的受威胁比例更高,约40%。此外,大量近期描述的新物种尚未开展濒危等级评估(38种,占云南省物种总数的16%; 表3),其受威胁等级和种群生存状态亦缺乏研究。已评估的受威胁物种和国家级重点保护物种集中分布于南部的3个动物地理区,其中滇南山地区物种受威胁比例最高、国家级保护物种数量最多(表7, 表8)。

### 3 小结和展望

**3.1 云南省爬行动物多样性研究的现存问题与建议**  
伴随着野外调查和爬行动物系统分类学研究的逐步开展,云南省爬行动物多样性自20世纪90年代开始呈多项式函数增长,近年来物种数量增长速度不断加快,显示云南省爬行动物多样性可能仍处于被低估的状态,亟待进一步调查研究(图2)。

我国爬行动物的分类体系正处于修订完善过程中(王凯等, 2020),一方面高阶元分类变动依旧时有发生,种级分类变动频繁,而随着跨境研究的开展,已知物种的新分布纪录也不断涌现;另一方面,已知物种在省内的具体分布缺乏精确数据,部分近期发生的分类厘定及物种相应分布数据未能得到及时更新。信息的匮乏和滞后大大限制了物种受威胁等级的评估、生物多样性保护以及生物地理/演化生物学的量化分析研究。

作者建议: (1)应继续支持并鼓励开展本底调查和分类学研究,完善分类体系构架,对本文指出的存疑分布和存疑分类问题开展研究,最终获得以县、市为单位,细化精准的物种分布数据; (2)今后在描述新物种的同时,还应系统性地对相关类群的

表7 云南省爬行动物物种的分布及物种属性统计。不同比例的计算均相对于对应物种集或生物地理区的物种总数。不同动物地理区的统计数据不包括存疑分布物种(存疑物种名录见表4)。“/”表示不适用。受威胁物种信息参照《中国生物多样性红色名录·脊椎动物(第三卷): 爬行动物》(王跃招等, 2021)。受威胁物种比例指相对于已评估濒危等级物种总数; 其余比例则均相对于对应区域的物种总数。

Table 7 Zoogeographic division of Yunnan Province based on reptile fauna and the associated statistics on species distributions and certain characteristics of species (i.e. endemism, conservation and protection status, and type locality information). Each of the percentage calculation is relative to the total number of species in the specific subset or specific zoogeographic region. The statistics of each zoogeographic region do not include questionable records retained in our study (see Table 4 for details). “/” indicates not applicable. The threatened species information follows *China’s Red List of Biodiversity•Vertebrates (Vol. III): Reptiles* by Wang YZ et al (2021). Percentage of threatened species is relative to the total number of assessed species; and all remaining percentages are relative to the total number of species in each corresponding category/region.

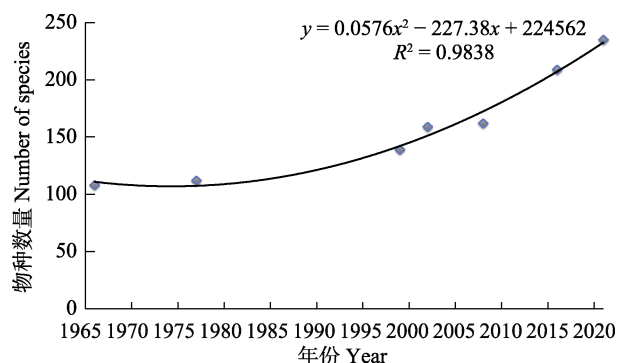
		云南省 总数 Total number of Yunnan	国内仅见 于云南 Only found in Yunnan in China	云南特有 Endemic to Yunnan	动物地理区 滇西北横 断山区 Northwestern Hengduan Mountains of Yunnan	Zoogeographic regions				滇西山地区 Western Hills of Yunnan	滇南山地区 Southern Hills of Yunnan	滇东南山 地区 Southeastern Hills of Yunnan	滇中高原区 Northern and Central Yunnan Plateau	滇东北山 地区 Northeastern Hills of Yunnan
科	Family	25	0	0	11	19	23	21	15	12				
属	Genus	82	5	0	20	56	66	58	36	19				
种 Species	龟鳖目 Testudines	16	3	1	0	4	9	7	4	1				
	蜥蜴亚目 Lacertilia	72	29	16	11	27	23	25	13	5				
	蛇亚目 Serpentes	147	45	13	21	66	68	60	38	21				
	总数 Total number	235	77	30	33	97	100	92	54	27				
云南特有物种数量 Endemic species of Yunnan		30	—	—	7	8	4	7	5	0				
特有物种所占比例 Percentage of endemic species		13%	—	—	21%	8%	4%	8%	9%	0%				
国内仅见于云南 Species only found in Yunnan in China		75	—	—	7	35	29	19	5	0				
仅见于云南物种所占 比例 Percentage of the species only found in Yunnan in China		33%	—	—	21%	36%	29%	21%	9%	0%				
中国红色名录已评估濒危 等级物种数量 Number of species assessed for conservation status by <i>China's Red List</i>		192	40	12	26	80	89	81	50	26				
受威胁物种数量 Threatened species		66	16	2	7	28	37	31	17	4				
受威胁比例 Percentage of threatened species		34%	40%	17%	27%	35%	42%	38%	34%	15%				
保护物种数量 Protected species listed by the List of Wild Animals under State Protection		28	9	3	4	12	16	15	8	0				
保护物种占比 Percentage of protected species		12%	12%	11%	13%	12%	16%	16%	15%	0%				
模式产地在该区域的物种 数 Species with type locality in corresponding regions		62	46	30	13	22	15	16	15	2				
模式产地在该区域物种 比例 Percentage of species with type locality in corresponding regions		26%	60%	—	41%	23%	15%	17%	28%	7%				



**表8** 《国家重点保护野生动物名录》更新后云南省分布的国家重点保护爬行动物。巨蜥科整科列入国家I级保护, 因此名录中未以物种形式具体列出、曾被视为孟加拉巨蜥(*Varanus bengalensis*)次定同物异名的伊江巨蜥(*V. irrawadicus*)和暗影巨蜥(*V. nebulosus*), 其保护等级也定为I级, 在此以\*标注。“分布范围”一列中的“?”表示省内的分布存疑(详见附录2讨论)。林草: 林业和草原局; 渔政: 渔业渔政管理局。

Table 8 Nationally protected reptilian species of Yunnan Province based on the updated List of Wild Animals under Special State Protection in China (LWASSP). For *Varanus irrawadicus* and *V. nebulosus* that are not listed as individual species in the LWASSP, because the entire family has been included as Class I protected, therefore the protection status of the two species were treated as Class I, which is indicated by “\*”. “?” indicates questionable distribution of the species in Yunnan (see detailed discussion in Appendix 2). Forestry: National Forestry and Grassland Administration; Fishery: Fishery Administration of the Ministry of Agriculture and Rural Affairs.

中文名 Chinese common name	学名 Scientific name	保护等级 National protection level	云南省内分布范围 Distribution in Yunnan Province	主管部门 Responsible administrative department
百色闭壳龟	<i>Cuora mccordi</i>	II	滇东南 Southeastern Yunnan (?)	渔政 Fishery
锯缘闭壳龟	<i>Cuora mouhotii</i>	II	滇东南 Southeastern Yunnan	渔政 Fishery
云南闭壳龟	<i>Cuora yunnanensis</i>	II	滇中 Central Yunnan	渔政 Fishery
周氏闭壳龟	<i>Cuora zhoui</i>	II	滇东南 Southeastern Yunnan (?)	渔政 Fishery
欧氏摄龟	<i>Cyclemys oldhami</i>	II	滇西, 滇南 Western and southern Yunnan	渔政 Fishery
地龟	<i>Geoemyda spengleri</i>	II	滇西, 滇南 Western and southern Yunnan	渔政 Fishery
乌龟	<i>Mauremys reevesii</i>	II	滇中 Central Yunnan (?)	渔政 Fishery
黄喉拟水龟	<i>Mauremys mutica</i>	II	滇南 Southern Yunnan (?)	渔政 Fishery
鼋	<i>Pelochelys cantorii</i>	I	滇南, 滇东南 Southern and southeastern Yunnan	渔政 Fishery
山瑞鳖	<i>Palea steindachneri</i>	II	滇南, 滇东南 Southern and southeastern Yunnan	渔政 Fishery
平胸龟	<i>Platysternon megacephalum</i>	II	滇西, 滇南, 滇东南 Western, southern, and southeastern Yunnan	渔政 Fishery
斑鳖	<i>Rafetus swinhoei</i>	I	滇东南 Southeastern Yunnan	渔政 Fishery
四眼斑水龟	<i>Sacalia quadriocellata</i>	II	滇中 Central Yunnan (?)	渔政 Fishery
缅甸陆龟	<i>Indotestudo elongata</i>	I	滇西, 滇南 Western and southern Yunnan	林草 Forestry
凹甲陆龟	<i>Manouria impressa</i>	I	滇南, 滇东南 Southern and southeastern Yunnan	林草 Forestry
香格里拉温泉蛇	<i>Thermophis shangrila</i>	I	滇西北 Northwestern Yunnan	林草 Forestry
伊江巨蜥	<i>Varanus irrawadicus</i>	I*	滇西 Western Yunnan	林草 Forestry
暗影巨蜥	<i>Varanus nebulosus</i>	I*	滇东南 Southeastern Yunnan	林草 Forestry
圆鼻巨蜥	<i>Varanus salvator</i>	I	滇西, 滇南, 滇东南 Western, Southern, and Southeastern Yunnan	林草 Forestry
三索锦蛇	<i>Coelognathus radiatus</i>	II	除滇西北和滇东北外广布 Widely distributed except northwestern and northeastern Yunnan	林草 Forestry
短尾龙蜥	<i>Diploderma brevicauda</i>	II	滇西北 Northwestern Yunnan	林草 Forestry
帆背龙蜥	<i>Diploderma vela</i>	II	滇西北 Northwestern Yunnan	林草 Forestry
细脆蛇蜥	<i>Dopasia gracilis</i>	II	除滇西北和滇东北外广布 Widely distributed except northwestern and northeastern Yunnan	林草 Forestry
脆蛇蜥	<i>Dopasia harti</i>	II	除滇西北和滇东北外广布 Widely distributed except northwestern and northeastern Yunnan	林草 Forestry
大壁虎	<i>Gekko gecko</i>	II	滇西, 滇南 Western and southern Yunnan	林草 Forestry
黑疣大壁虎	<i>Gekko reevesii</i>	II	滇东南 Southeastern Yunnan	林草 Forestry
尖喙蛇	<i>Gonyosoma boulengeri</i>	II	滇东南 Southeastern Yunnan	林草 Forestry
眼镜王蛇	<i>Ophiophagus hannah</i>	II	除滇东北外广布 Widely distributed except northeastern Yunnan	林草 Forestry
长鬣蜥	<i>Physignathus cocincinus</i>	II	滇东南 Southeastern Yunnan	林草 Forestry
黑网乌梢蛇	<i>Ptyas carinata</i>	II	滇西, 滇南 Western and southern Yunnan	林草 Forestry
蟒	<i>Python bivittatus</i>	II	滇西, 滇南, 滇东南 Western, southern, and southeastern Yunnan	林草 Forestry
闪鳞蛇	<i>Xenopeltis unicolor</i>	II	滇南 Southern Yunnan	林草 Forestry



**图2** 云南省已知爬行动物物种数量变化趋势。物种数量来自赵尔宓和江耀明(1966)、四川省生物研究所(1977)、张孟闻等(1998)、赵尔宓等(1998, 1999)、何晓瑞和周希琴(2002)、杨大同和饶定齐(2008)、孙航和高正文(2016)以及本研究。最佳拟合函数为多项式函数, 物种增加速度随时间的推移依旧在逐渐加快, 暗示云南省爬行动物多样性依旧被低估。Fig. 2 Comparison of scatter plots showing the different increasing trends of the number of recognized reptile species of both Yunnan Province and China as a whole. Data on species number were taken from Zhao and Jiang (1966), Sichuan Institute of Biology (1977), Zhang et al (1998), Zhao et al (1998, 1999), He and Zhou (2002), Yang and Rao (2008), Sun and Gao (2016), and the present study. The best fit line is polynomial, showing an increasing speed in species discovery in the recent years, which indicates that the reptilian diversity of Yunnan Province is still underestimated.

分类、分布历史进行梳理, 厘清历史遗留问题, 为后续完善物种名录和分布数据奠定良好基础; (3)对将来的物种名录研究, 应做到数据信息公开, 新记录物种应提供明确的参考文献依据或实体标本凭证依据, 物种的移除也应提供详细的解释说明, 以便于后续研究依据最新数据进一步订正和更新; (4)伴随着活体动物贸易和不科学放生活动的增长, 外来物种和国内非本地物种的种类和出现频率也逐渐增多, 特别是龟鳖类物种的放生现象尤为突出, 今后相关研究应谨慎对待所记录物种的来源, 避免因产生误记。

### 3.2 物种保护建议

云南省爬行动物受威胁等级高, 特有、国内仅见于云南省的物种占比高, 其保护是省内野生动物保护的重点工作之一。省内受威胁、国家重点保护以及国内仅见于云南省的爬行动物物种集中分布于省内南部热带、亚热带地区, 建议进一步加强上述区域的栖息地保护和对盗猎的管控。此外, 滇西北横断山区和滇中高原区特有物种比例高, 爬行动物模式产地也多集中于此, 但这些区域相比滇南地

区保护力度更加薄弱, 特别是特有爬行动物分布集中的干热河谷栖息地, 破坏现象尤为突出(Wang et al, 2021a, b; Zhang YZ et al, 2021)。因此, 建议今后加强对滇西北、滇中地区重要栖息地的保护工作, 特别是龙蜥属物种集中分布的金沙江、澜沧江干热河谷和云南闭壳龟分布的滇中山地湿地生境。

近期更新出台的《国家重点保护野生动物名录》和《云南省生物多样性保护条例》为包括爬行动物在内的云南省生物物种多样性的保护提供了重要的法律依据(刘春晖等, 2021; 表8)。但新版《国家重点保护野生动物名录》中对受威胁爬行动物的覆盖度依旧不足(Wang et al, 2021d), 云南省仍有26种受威胁爬行动物未能进入国家级保护名录(附录1)。而《云南省省级重点保护陆生野生动物名录》自1989年发布起一直未有更新, 至今仅收录4种爬行动物(张琦, 2019): 其中收录的*Naja naja*在中国无分布纪录, 伊江巨蜥和眼镜王蛇(*Ophiophagus hannah*)已被调整入国家级保护动物名录, 仅尖吻蝾一种存疑分布的物种受省级名录实际保护。因此, 建议云南省有关部门尽快组织专家, 在更新版《国家重点保护野生动物名录》的基础上, 更新《云南省省级重点保护陆生野生动物名录》, 将未能进入《国家重点保护野生动物名录》的受威胁、特有爬行动物进行补充收录, 以充分发挥我国野生动物保护法律网络结构的优势(蒋志刚, 2019), 对云南省生物多样性提供及时有效的法律保护。

随着爬行动物物种分类厘定和分布数据的更新, 物种的濒危等级随时间不断调整变更将成为常态。面对上述变化可能带来的保护空白, 野生动物保护工作需要及时作出相应的调整与改变。针对分类体系、物种分布范围和受威胁等级频繁变化的客观事实, 建议有关部门参考《国家重点保护野生动物名录》的更新时间, 定期对《云南省重点保护陆生野生动物名录》进行更新。同时, 可通过在线公布的方式, 及时更新省级爬行动物多样性名录和受威胁等级数据, 以便生物多样性相关立法、执法部门便捷地掌握最新的数据动态。

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## 附录 Supplementary Material

### 附录1 云南省爬行动物更新名录

Appendix 1 Updated checklist of reptilian fauna of Yunnan Province, China  
<https://www.biodiversity-science.net/fileup/PDF/2021326-1.xlsx>

### 附录2 云南省爬行动物存疑保留纪录、移除已有纪录的具体解释说明

Appendix 2 Detailed explanations for the retained questionable records and removed previous records of reptilian fauna of Yunnan  
<https://www.biodiversity-science.net/fileup/PDF/2021326-2.pdf>

### 附录3 部分存疑保留、移除或新增纪录对应的实体标本信息和代表个体照片

Appendix 3 Voucher information and specimen photos for some of the retained questionable records, removed records, or newly added records of reptiles from Yunnan  
<https://www.biodiversity-science.net/fileup/PDF/2021326-3.pdf>

## 附录 2 云南省爬行动物存疑保留纪录、移除已有纪录的具体解释说明

### Appendix 2 Detailed explanations for the retained questionable records and removed previous records of reptilian fauna of Yunnan

#### 1. 存疑保留原纪录物种的具体解释说明

##### 1.1 银环蛇(*Bungarus multicinctus*)

早期分类学研究将银环蛇分为 2 个亚种, 即指名亚种 *Bungarus m. multicinctus* 和云南亚种 *B. m. wanghaotingi* (Mell, 1929; Pope, 1935; 赵尔宓和杨大同, 1997; 赵尔宓等, 1998; 杨大同和饶定齐, 2008), 于云南省均有纪录, 其中指名亚种记录于滇西盈江县(杨大同等, 1978)和滇东南金平县(杨大同和饶定齐, 2008), 而云南亚种则记录于滇南(杨大同和赵尔宓, 1997; 杨大同和饶定齐, 2008)。尽管近期分类学研究确定了原云南亚种应代表独立的有效种, 即云南环蛇(*B. wanghaotingi*) (Leviton et al, 2003; Chen et al, 2021), 且滇西的原指名亚种纪录实际代表了一新种, 素贞环蛇(*B. suzhenae*) (Chen et al, 2021), 然而对于滇东南金平县的原银环蛇指名亚种纪录至今未有具体研究对其鉴定的准确性进行核实。鉴于银环蛇-马来环蛇种组形态鉴定难度较高, 且分类尚有待进一步厘定, 本研究暂保留银环蛇在云南省滇东南的分布纪录。

##### 1.2 中国钝头蛇(*Pareas chinensis*)

Pope (1928)将昆明的钝头蛇描述为昆明钝头蛇(*Pareas niger*), 随后 Mell (1931)将云南大理的钝头蛇描述为喜山钝头蛇云南亚种(*Amblycephalus monticola yunnanensis*) (= *Pareas monticola yunnanensis*)。后续二者均被认为是中国钝头蛇的次定同物异名(Zhao & Adler, 1993; 赵尔宓等, 1998)。近期资料采纳了上述同物异名的处理, 仅记载云南分布有中国钝头蛇, 分布区包括了云南大理、昆明和景东(赵尔宓和杨大同, 1997; 杨大同和饶定齐, 2008)。Guo 等(2020)利用鳞片微观结构比较, 首次建议恢复喜山钝头蛇云南亚种的有效性, 并将其提升至种级, 即云南钝头蛇(*P. yunnanensis*)。随后 Liu 和 Rao (2021)采纳了 Guo 等(2020)的观点, 并依据形态和分子数据确认了昆明钝头蛇的有效性。因此, 近期分类厘定后, 中国钝头蛇于云南的分布纪录仅位于景东。鉴于中国钝头蛇-台湾钝头蛇复合种分类历史复杂, 将来应进一步确认景东“中国钝头蛇”的分类地位, 故本研究在此对其纪录做保留存疑处理。

##### 1.3 黄链蛇 (*Lycodon flavozonatus*)

赵尔宓等(1998)记录云南省分布黄链蛇, 但并未提供相应依据标本或在云南省内的具体分布区域。随后杨大同和饶定齐(2008)记载黄链蛇在云南省分布于滇东南绿春、麻栗坡和滇西的永德县。尽管滇东南的“黄链蛇”纪录被认为是南方链蛇(*L. meridionalis*)的误定(Orlov & Ryabov, 2004), 但滇西的纪录尚未有研究进行核实。因此, 本研究暂保留黄链蛇在云南省的分布记录。

##### 1.4 中国壁虎 (*Gekko chinensis*)



中国壁虎早期也被认为广泛分布于我国南方(赵尔宓等,1999), 与其他壁虎间的误定甚多。赵尔宓和杨大同(1977)记录中国壁虎分布于云南大理下关, 何晓瑞和周希琴(2002)记录中国壁虎分布于滇中和滇东北, 而杨大同和饶定齐(2008)则记录中国壁虎分布于滇南西双版纳。近期研究指出目前认为的“中国壁虎”代表了一个复合种(Ota et al, 1995; Nguyen et al, 2013), 且其确认分布区域与云南记载区域相差甚远, 因此本研究将云南的纪录以存疑方式收录。

### 1.5 乌龟 (*Mauremys reevesii*)

Werner (1924)首次于 Yunnanfu (=昆明)记录有乌龟, 然而 Pope (1935)认为该记录应该为市场采购的贸易个体, 而非原生。赵尔宓和杨大同(1997)和张孟闻等(1998)中均记录乌龟分布于云南, 但未提供记录所依据的标本信息。近期何晓瑞和周希琴(2002)以及杨大同和饶定齐(2008)亦记录乌龟分布于云南, 具体产地包括了滇西北(何晓瑞和周希琴, 2002), 昆明、玉溪和泸水(杨大同和饶定齐, 2008); 但与早期记录一样, 上述两项研究依旧未提供标本依据。经核查标本, 中国科学院昆明动物研究所内仅有 1 号采于云南省玉溪市洛河乡的乌龟标本(KIZ 86I003) (附录 3), 而成都生物研究所保存有 1 号云南产地不详的乌龟标本(CIB 000122)。然而由于不论是之前记录的滇中高原的昆明和玉溪、或滇西高黎贡山余脉的泸水, 均与乌龟确认分布区的平原沼泽生境和生物地理区系差异巨大(周婷和李丕鹏, 2013), 加之 1986 年至今云南省内未有任何野生乌龟的确认报道, 因此作者支持 Pope (1935)的质疑, 认为云南的乌龟标本极有可能是人为放生所致, 故在此仅以存疑方式收录。

### 1.6 周氏闭壳龟(*Cuora zhoui*)、百色闭壳龟(*C. mccordi*)

何晓瑞和周希琴(2002)首次记录周氏闭壳龟分布于滇中, 并以存疑的方式(其表 1 中以“?”注释)记录百色闭壳龟分布于滇东南, 但均未提供描述依据的具体标本信息。类似地, 张孟闻等(1998)首次记录云南省分布有黄喉拟水龟(*Mauremys mutica*), 随后何晓瑞和周希琴(2002)以及杨大同和饶定齐(2008)亦报道该种分布于滇南, 但上述研究均未提供标本依据。McCord (1997)于云南西南部描述一新种, 腊戍拟水龟(*Mauremys pritchardi*), 但随后该种被证实是乌龟和黄喉拟水龟的杂交个体(Wink et al, 2001; Spinks et al, 2004)。鉴于上述 3 种龟在云南省周边区域均有分布(百色闭壳龟和周氏闭壳龟分布于广西西部边境区域, 黄喉拟水龟在越南北部有分布; 周婷和李丕鹏, 2013), 因此在此以存疑方式进行收录。

### 1.7 变色树蜥(*Calotes versicolor*)

变色树蜥曾记录广泛分布于亚洲各地, 包括我国南方各省(赵尔宓等, 1999), 而云南省内记录分布于滇西南和滇东南(赵尔宓和杨大同, 1997; 何晓瑞和周锡琴, 2002; 杨大同和饶定齐, 2008)。近期 Liu 等(2021)证实滇西南的原变色树蜥种群实际代表了伊江树蜥(*C. irawadi*)的误定; 而 Gowande 等(2021)研究表明, 真正的变色树蜥仅分布于印度南部, 而中南半岛的原变色树蜥种群代表了 1 个复合种, 其中可能包

含了多个独立的演化支系。鉴于目前对于云南省东南部的种群及我国剩余的“变色树蜥”种群缺乏分类研究, 具体分类地位不明, 因此将其暂以存疑方式收录。

#### 1.8 四眼斑水龟 *Sacalia quadriocellata*

孙航和高正文(2016, 2017)首次报道云南省分布有四眼斑水龟, 但书中并未给出新纪录依据的实体标本信息或该种在云南省内的分布范围。经核查中国科学院昆明动物研究所两栖爬行标本馆馆藏, 云南昆明确有 1 号四眼斑水龟标本(KIZ 20014039), 于 2001 年采集于昆明市小石坝(附录 3)。由于采集地点紧靠人口密集的市郊, 采集时间段内昆明市非法龟鳖贸易现象突出, 因此该标本来自于人为放生的可能性极大。但由于四眼斑水龟在邻近的广西和越南北部边境地区亦有分布(TTWG, 2021), 因此本文对该种以存疑方式进行收录。

#### 1.9 舟山眼镜蛇(*N. atra*)

赵尔宓和杨大同(1997)在将孟加拉眼镜蛇(*Naja kaouthia*)视为舟山眼镜蛇一亚种的情况下, 仅记载广义横断山分布有眼镜蛇孟加拉亚种; 随后赵尔宓等(1998)记录云南省分布有眼镜蛇两亚种, 其中明确指出孟加拉亚种分布于滇西和滇南, 但并未指出指名亚种在云南的分布区域; 之后何晓瑞和周希琴(2002)、杨大同和饶定齐(2008)均报道云南省仅分布有孟加拉亚种。在承认孟加拉亚种应提升为有效种的情况下, 赵尔宓(2006)记载云南省仅分布有孟加拉眼镜蛇。近期, 孙航和高正文(2017)在承认原舟山眼镜蛇孟加拉亚种(*N. a. kaouthia*)代表有效种的情况下, 依旧记载云南省分布有舟山眼镜蛇, 但未提供任何依据文献或标本信息。鉴于云南省眼镜蛇属物种的具体分类存在争议而缺乏跟进研究(杨大同和饶定齐, 2008), 而云南省与舟山眼镜蛇分布区距离较远, 故在此将舟山眼镜蛇以存疑方式进行收录。

#### 1.10 泰国圆斑蝥 *Daboia siamensis*

赵尔宓(2006)首次记录云南省分布有圆斑蝥泰国亚种(*Daboia russellii siamensis*) (该亚种后被提升为有效种, 即泰国圆斑蝥; Thrope et al, 2007), 但其并未提供标本依据, 后续部分研究予以收录, 但亦未提供依据标本或分布范围(饶定齐, 2020), 而另一部分研究并未收录该种(杨大同和饶定齐, 2008)。鉴于泰国圆斑蝥在周边省份和邻国有分布(赵尔宓等, 1998), 故在此对其以存疑方式进行收录。

#### 1.11 其他无实体标本记录物种

百色闭壳龟(*Cuora mccordi*)、周氏闭壳龟(*Cuora zhoui*)、黄喉拟水龟(*Mauremys mutica*)、喉褶蜥(*Ptyctolaemus gularis*)、鹰氏壁虎(*Gekko adleri*)、尖吻蝥(*Deinagkistrodon acutus*)、广西林蛇(*Boiga guangxiensis*)、百花锦蛇(*Elaphe moellendorffi*)、灰腹绿锦蛇(*Gonyosoma frenatum*)、环纹华游蛇(*Trimerodytes aequifasciatus*)和缅北原矛头蝥(*Protobothrops kaulbacki*)在最初报道的文献中未提供依据

王凯, 吕植桐, 王健, 齐硕, 车静 (2022) 云南省爬行动物名录和地理区划更新. 生物多样性, 30, 21326.  
<https://www.biodiversity-science.net/CN/10.17520/biods.2021326>

标本和/或云南省内具体分布范围(何晓瑞和周希琴, 2000; 杨大同和饶定齐, 2008; 孙航和高正文, 2016, 2017; 饶定齐, 2020); 然而由于上述物种在云南省周边省份(广西、西藏)和/或邻国(缅甸、越南北部)的边境地区确有分布(赵尔宓等, 1998, 1999; Schulte et al, 2004; Nguyen et al, 2009, 2013; Pham et al, 2017, 2020; 车静等, 2021), 故在此以存疑方式进行收录。

## 2. 新移除已记录物种的具体解释说明

### 2.1 潘氏闭壳龟(*Cuora pani*)

Ernst 和 McCord (1987)依据收购的活体标本, 描述云南省东南部一新种, 即 *Cuora chriskarannarum*, 随后该种被认为是潘氏闭壳龟的次定同物异名(McCord & Iverson, 1991; 杨大同和饶定齐, 2008; 周婷和李丕鹏, 2013)。由于 Ernst 和 McCord (1987)描述“新种”的模式标本也均是通过香港宠物贸易获得, 并没有确认的产地信息, 其模式产地信息可靠性严重存疑。加之随后至今的 33 年间, 云南省内也未有任何潘氏闭壳龟的报道, 且潘氏闭壳龟的确认分布区(陕西省和四川省北部; 赵尔宓, 2003; 周婷和李丕鹏, 2013)与云南省亦不在同一动物地理区, 因此潘氏闭壳龟分布于云南省的可能性极低, 而最初报道应为宠物贸易信息的误记, 故在此移除。

### 2.2 蹼趾壁虎(*Gekko subpalmatus*)

蹼趾壁虎被早期研究认为广泛分布于我国南方(赵尔宓等, 1999)。杨大同和饶定齐(2008)首次记录蹼趾壁虎分布于滇东北绥江县和滇南西双版纳自治州。由于近期分类研究已指出原认为的“蹼趾壁虎”实际为复合种, 真正的蹼趾壁虎仅分布于华东, 而分布于西南四川盆地及周边地区的种群已被确认代表了一个独立的物种, 即成都壁虎(*Gekko cib*) (Lyu et al, 2021); 因此云南省滇东北和滇南原记录的“蹼趾壁虎”分类地位存疑。经核查, 滇南的“蹼趾壁虎”纪录无实体标本依据, 而云南省绥江县的“蹼趾壁虎”相关标本(KIZ 82I012, 82I014, 82I015)形态特征区别于真正的蹼趾壁虎(颞鳞宽/颞鳞长  $1.36 \pm 0.18$ ; 眶径/头长  $0.19 \pm 0.01$ ; Lyu et al, 2021), 而与近期发表的成都壁虎形态一致(颞鳞宽/颞鳞长  $> 1.6$ ; 眶径/头长  $> 0.23$ ; Lyu et al, 2021)。故在此将云南省蹼趾壁虎纪录移除, 并报道成都壁虎新纪录, 分布于云南省东北部昭通市绥江县。

### 2.3 金头闭壳龟(*Cuora aurocapitata*)

Ernst (1988)对潘氏闭壳龟进行了再描述, 而随后张孟闻等(1998)认为 Ernst (1988)的再描述中所依据的标本实际是金头闭壳龟的误定, 并且指出其描述依据的部分标本来自云南, 并据此推理将金头闭壳龟以存疑收录的形式记录于云南。然而 Ernst (1998)的再描述中并未指出其依据个体来自云南, 文中参考的保存于美国国家自然历史博物馆(USNM)的潘氏闭壳龟标本也均来自中国陕西省(USNM 2661966–2661969), 在描述中依据的活体则来自宠物贸易, 缺乏确认的产地信息。后续何晓瑞和周希琴(2002)也收录了金头闭壳龟, 但依旧未能提供带有准确采集信息的实体标本作为依据。近期杨大同和饶定齐(2008)并未收录该种。鉴于金头闭壳龟确认产地仅位于华东的安徽省, 与云南省不在同一生物地理区系, 且相距甚远, 先前报道来自“云南”的金头闭壳龟地点信息极可能是宠物贸易过程中的误记, 故本研究并未收录金头闭壳龟。



## 2.4 齿缘摄龟(*Cyclemys dentata*)

早期研究依据市场购买标本记载云南南部分布有齿缘摄龟(汤俊和宗愉, 1988)。之后 Kou (1989)亦报道云南分布齿缘摄龟, 但未说明标本来源, 同时 Kou (1989)依据云南的标本描述一新种, 滇南摄龟(*C. tiannanensis*)。后续研究指出, 滇南摄龟实际为欧氏摄龟(*C. oldhamii*)的次定同物异名(Fritz et al, 1997, 2008)。杨大同和饶定齐(2008)在并未讨论滇南摄龟有效性或欧氏摄龟的情况下, 仅记录云南分布齿缘摄龟, 但并未提供所依据标本的来源是否是贸易。孙航和高正文(2016)在承认并收录欧氏摄龟的情况下, 同时存疑收录了齿缘摄龟, 但依旧未作出解释说明。饶定齐(2020)仅记录云南分布齿缘摄龟, 但未提供齿缘摄龟在云南的具体分布信息或提供记录标本依据; 而该书齿缘摄龟的配图则为人工饲养情况下拍摄的亚洲巨龟(*Heosemys grandis*)。鉴于近期中国爬行动物名录均未收录齿缘摄龟(蔡波等, 2015; 王凯等, 2020), 且齿缘摄龟确认的原生分布区仅在东南亚南部的岛屿部分, 中南半岛主陆的记录均是其他种的误定(TTWG, 2021), 因此目前没有证据证明齿缘摄龟自然分布于我国, 故本名录将该纪录移除。

## 2.5 亚洲鳖(*Amyda cartilaginae*)

Kuchling (1995)依据云南瑞丽集市出售的个体, 报道了多种原记录东南亚的龟鳖目物种, 其中包括了亚洲鳖。然而 Kuchling (1995)亦承认由于语言障碍, 无法得知这些购买的个体是否为当地原生。随后除孙航和高正文(2016, 2017)外, 后面没有一项研究报道了包括亚洲鳖在内的任何 Kuchling (1995)所报道的物种(四川生物研究所, 1977; Zhao & Adler, 1993; 张孟闻等, 1998; 何晓瑞和周希琴, 2002; 杨大同和饶定齐, 2008; 史海涛, 2011; 周婷和李丕鹏, 2013; 蔡波等, 2015; 王凯等, 2020), 而孙航和高正文(2016, 2017)也未提供收录亚洲鳖所依据的标本信息、参考依据或具体解释。由于该种目前在云南的报道信息仅限于 Kuchling (1995)报道的贸易个体, 加之亚洲鳖的确认分布区位于东南亚南部的马来西亚、印度尼西亚等地, 与云南边境间相隔的国家也均没有记载报道(TTWG, 2021), 故本研究移除该种分布纪录。

## 2.6 平头腹链蛇(*Herpetoreas platyceps*)

平头腹链蛇模式产地位于喜马拉雅山南麓印度东北部的大吉岭, 我国确认分布区仅限于西藏自治区东南部(车静等, 2020)。杨大同和饶定齐(2008)依据云南省西北部丽江市玉龙县鲁甸乡一号标本(KIZ II0501)首次报道该种在云南省的分布纪录, 其记录地与该种确认分布区的喜马拉雅山南麓生物地理区系差异巨大(车静等, 2020)。经检视该标本发现, 云南标本的形态特征与西藏的平头腹链蛇差异显著(云南标本背鳞强烈起棱、腹鳞 172 枚、尾下鳞 72 对、上颌齿 15 枚、腹部无链纹; 西藏标本背鳞光滑或微弱起棱、腹鳞 185–202 枚、尾下鳞 69–98 枚、上颌齿 19–21 枚、腹部具明显链纹; 赵尔宓等, 1998; 附录 3; 车静等, 2020), 而与近期发表的维西腹链蛇 *Hebius weixiensis* 形态特征吻合(Hou et al, 2021)。因此杨大同和饶定齐(2008)报道“平头腹链蛇”所依据的标本应为维西腹链蛇的误定, 故在此移除该纪录。

## 2.7 短尾蝮 (*Gloydius brevicauda*)

何晓瑞和周希琴(2000)首次以存疑方式记录短尾蝮分布于云南南部。随后研究中仅饶定齐(2020)收录该种,但未提供依据标本或在云南省内的具体分布范围。经核查中国科学院昆明动物研究所两栖爬行动物标本库,云南省“短尾蝮”仅1号标本,于1981年采自云南省迪庆藏族自治州香格里拉市(附录3),为雪山蝮(*G. monticola*)的误定。鉴于短尾蝮早期在云南的存疑记录无实体标本依据、且报道记录点与短尾蝮确认分布区生物地理差异巨大,加之已有“短尾蝮”标本确定为它种的误定,故在此移除云南省短尾蝮分布纪录。

## 2.8 越南异鳞蜥 (*Pseudocophotis kontumensis*)

孙航和高正文(2016)首次记载云南分布有越南异鳞蜥,并在物种名称后添加“新拟”标注,但未提供参考标本信息,也并未对相关标注做具体解释;随后孙航和高正文(2017)保留该纪录并继续沿用“新拟”的标注,依旧未给出任何解释说明。该种目前仅已知分布于越南中南部的模式产地(Ananjeva et al, 2007),与我国边境接壤的越南北部亦未有该种的记载报道;加之该种在云南的首次记录即未有具体依据标本信息,故本研究移除该纪录。

## 2.9 山烙铁头蛇(*Ovophis monticola*)

基于形态学数据,山烙铁头蛇曾广泛记载分布于我国南方(赵尔宓等, 1998; 赵尔宓, 2006),而云南省则记载广泛分布于全省(赵尔宓和杨大同, 1997; 杨大同和饶定齐, 2008; 饶定齐, 2020)。近期针对山烙铁头蛇种组的系统分类研究证实,云南省原鉴定为“山烙铁头蛇”的物种实际是察隅烙铁头蛇和台湾烙铁头蛇的误定,而真正的山烙铁头蛇在我国目前仅分布于西藏东南部(Malhotra et al, 2011; 郭鹏个人通讯),故在此移除山烙铁头蛇在云南省的纪录。

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附录3 部分存疑保留、移除或新增纪录对应的实体标本信息和代表个体照片  
Appendix 3 Voucher information and specimen photos for some of the retained questionable records, removed records, or newly added records of reptiles from Yunnan

原定种 Previous Identification	厘定后物种 Corrected Identification	标本号 Voucher Number	采集地 Locality	采集时间 Collection Time	采集人 Collector
多疣壁虎 <i>Gekko japonicus</i>	粗疣壁虎 <i>Gekko scabridus</i>	KIZ 82I030	云南省昭通市巧家县	1982.08.31	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I076	云南省迪庆州德钦县奔子栏镇	1980.05.23	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I093	云南省迪庆州德钦县奔子栏镇	1980.05.25	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I094	云南省迪庆州德钦县奔子栏镇	1980.05.25	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I095	云南省迪庆州德钦县奔子栏镇	1980.05.25	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I096	云南省迪庆州德钦县奔子栏镇	1980.05.25	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I097	云南省迪庆州德钦县奔子栏镇	1980.05.25	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I098	云南省迪庆州德钦县奔子栏镇	1980.05.25	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I099	云南省迪庆州德钦县奔子栏镇	1980.05.25	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I100	云南省迪庆州德钦县奔子栏镇	1980.05.25	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I101	云南省迪庆州德钦县奔子栏镇	1980.05.25	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I102	云南省迪庆州德钦县奔子栏镇	1980.05.25	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I107	云南省迪庆州德钦县奔子栏镇	1980.05.26	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I108	云南省迪庆州德钦县奔子栏镇	1980.05.26	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I109	云南省迪庆州德钦县奔子栏镇	1980.05.26	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I110	云南省迪庆州德钦县奔子栏镇	1980.05.26	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I111	云南省迪庆州德钦县奔子栏镇	1980.05.26	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I112	云南省迪庆州德钦县奔子栏镇	1980.05.26	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I113	云南省迪庆州德钦县奔子栏镇	1980.05.26	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I114	云南省迪庆州德钦县奔子栏镇	1980.05.26	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I115	云南省迪庆州德钦县奔子栏镇	1980.05.26	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I116	云南省迪庆州德钦县奔子栏镇	1980.05.28	利思敏、苏承业
多疣壁虎 <i>Gekko japonicus</i>	金江壁虎 <i>Gekko jinjiangensis</i>	KIZ 80I117	云南省迪庆州德钦县奔子栏镇	1980.05.28	利思敏、苏承业
蹼趾壁虎 <i>Gekko subpalmatus</i>	成都壁虎 <i>Gekko cib</i>	KIZ 82I012	云南省昭通市绥江县	1982	利思敏
蹼趾壁虎 <i>Gekko subpalmatus</i>	成都壁虎 <i>Gekko cib</i>	KIZ 82I014	云南省昭通市绥江县	1982.07.13	利思敏
蹼趾壁虎 <i>Gekko subpalmatus</i>	成都壁虎 <i>Gekko cib</i>	KIZ 82I015	云南省昭通市绥江县	1982.07.13	利思敏
短尾蜥 <i>Gloydius brevicaudus</i>	雪山蜥 <i>Gloydius monticola</i>	KIZ II0564	云南省迪庆州香格里拉市	1981.09.14	不详
平头腹链蛇 <i>Herpetoreas platyceps</i>	维西腹链蛇 <i>Hebius weixiensis</i>	KIZ II0501	云南省丽江市玉龙县鲁甸乡	1981	不详
腹链蛇未定种 <i>Hebius</i> sp.	盐边腹链蛇 <i>Hebius yanbianensis</i>	KIZ 012344	云南省楚雄市永仁县	2011.10.18	杨军校
腹链蛇未定种 <i>Hebius</i> sp.	盐边腹链蛇 <i>Hebius yanbianensis</i>	KIZ 012345	云南省楚雄市永仁县	2011.10.18	杨军校
乌龟 <i>Mauremys reevesii</i>	—	KIZ 86I003	云南省玉溪市洛河乡	1986.05.03	不详
四眼斑水龟 <i>Sacalia quadriocellata</i>	—	KIZ 20014039	云南省昆明市小石坝	2001.04	利思敏



A1, A2: 乌龟 (*Mauremys reevesii*)  
B1, B2: 四眼斑龟 (*Sacalia quadriocellata*)



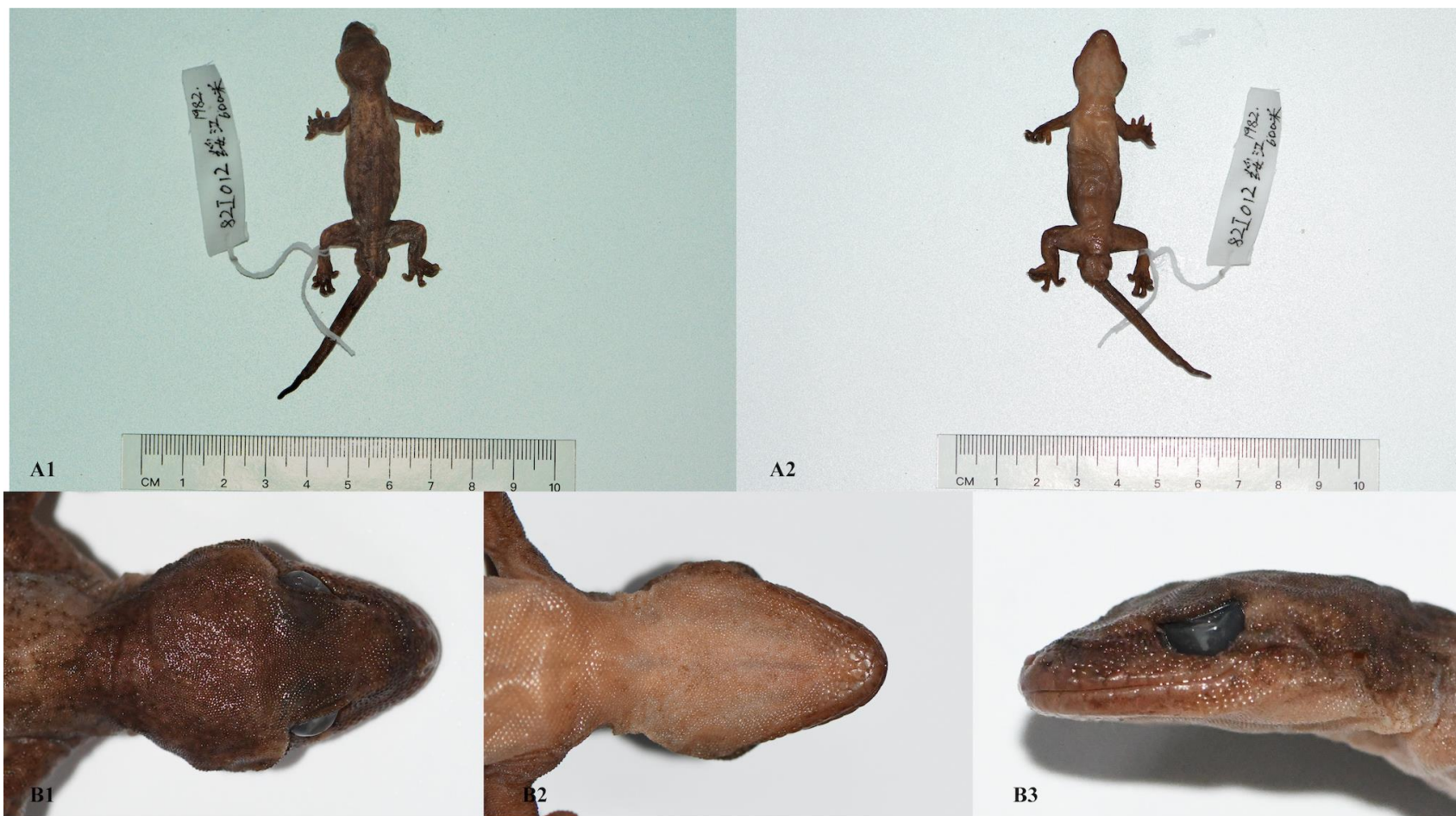
金江壁虎 (*Gekko jinjiangensis*)  
原鉴定为多疣壁虎 (*Gekko japonicus*)





粗疣壁虎 (*Gekko scabridus*)  
原鉴定为多疣壁虎 (*Gekko japonicus*)





成都壁虎 (*Gekko cib*)  
原鉴定为蹼趾壁虎 (*Gekko subpalmatus*)



雪山蝮 (*Gloydius monticola*)  
原鉴定为短尾蝮 (*Gloydius brevicauda*)





维西腹链蛇 (*Hebius weixiensis*)  
原鉴定为平头腹链蛇 (*Herpetoreas platyceps*)



盐边腹链蛇 (*Hebius yanbianensis*)

附录 3 部分存疑保留、移除或新增纪录对应的实体标本信息和代表个体照片

Appendix 3 Voucher information and specimen photos for some of the retained questionable records, removed records, or newly added records of reptiles from Yunnan