

CZU: [597.6 + 598.1](597)

DOI: <http://doi.org/10.5281/zenodo.3954013>

## SURVEY RESULTS ON AMPHIBIANS AND REPTILES IN NAM DAN DISTRICT, NGHE AN PROVINCE, VIETNAM

*Ong Vinh AN, Hoang Ngoc THAO\*, Hoang Xuan QUANG,  
Nguyen Thi TUYET\*\*, Ho Anh TUAN*

*Vinh University*

*\*Hong Duc University*

*\*\*Cua Lo high school*

A total number of 47 species of amphibians and reptiles were recorded during a recent field survey from Nam Dan district, Nghe An province (Vietnam). Including 13 amphibians species, 10 lizards species, 18 snakes species, and 6 turtles species. Among them, 10 species are rare, recorded in Vietnam Red Data Book (2007) and 5 species in IUCN Red List species (2019). Three species are recorded for the first time from Nghe An province: *Ptyas carinata*, *Naja kaouthia*, and *Pelodiscus variegatus*.

**Keywords:** *amphibians, reptiles, Nam Dan District, Nghe An Province, Vietnam, new record.*

### REZULTATELE PRIVIND STUDIUL AMFIBIENILOR ȘI REPTILELOR ÎN DISTRICTUL NAM DAN, PROVINCIA NGHE AN, VIETNAM

Un număr total de 47 de specii de amfibieni și reptile au fost înregistrate în timpul unui studiu recent efectuat pe teren din districtul Nam Dan, provincia Nghe An (Vietnam). Inclusiv: 13 specii de amfibian, 10 specii de șopârlă, 18 specii de șarpe și 6 specii de țestoasă. Printre acestea, există 10 specii rare, pe cale de dispariție, care au fost înscrise în Cartea Roșie din Vietnam (2007) și 5 specii – în lista roșie a UICN (2019). Trei specii sunt înregistrate pentru prima dată din provincia Nghe An: *Ptyas carinata*, *Naja kaouthia* și *Pelodiscus variegatus*.

**Cuvinte-cheie:** *amfibieni, reptile, districtul Nam Dan, provincia Nghe An, Vietnam, record nou.*

### Introduction

Nghe An province, Vietnam is assessed as a highly diverse area about amphibians and reptiles species. Hitherto, there have been done many studies on amphibians and reptiles here by such authors as Hoang Xuan Quang et al. (2008), Hoang Ngoc Thao et al. (2012), Le Nguyen Ngat & Hoang Xuan Quang (2001) [1-3]. However, these studies are mainly focused on conservation areas as Pu Mat National park, Pu Huong and Pu Hoat nature reserve. The transitional zone between the highlands and the midland plains have been poorly studied, including Nam Dan district, Nghe An province. Based on the results of our recent field surveys in 2017, we herein provide the first list of amphibians and reptiles recorded from Nam Dan district, Nghe An province, Vietnam.

### Material and methods

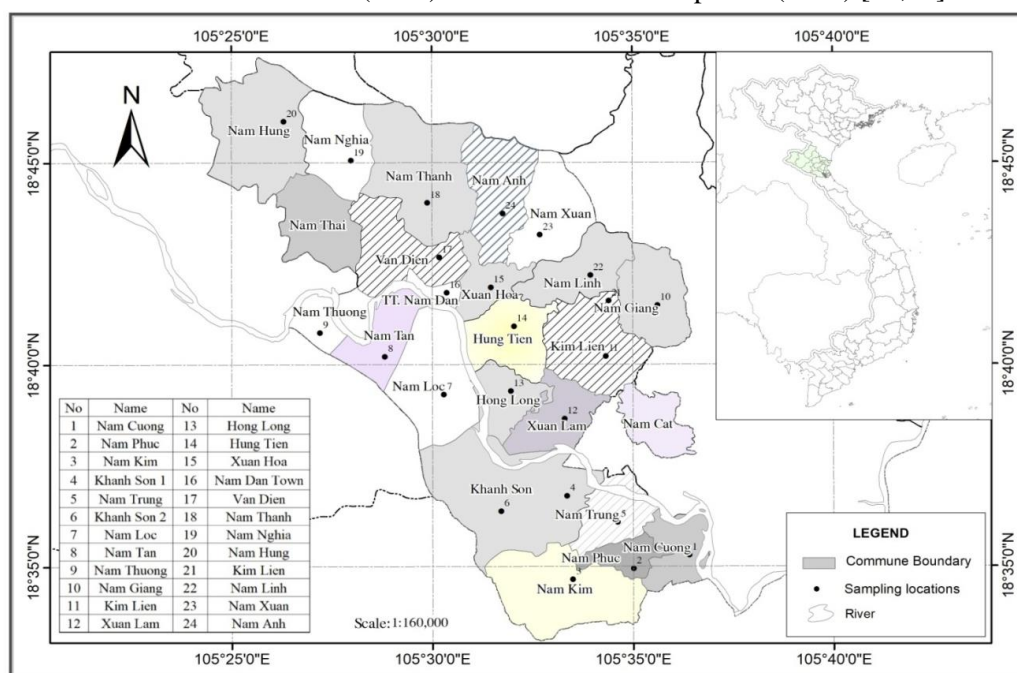
Field surveys in the Nam Dan district from February to June 2019, a total of 32 days for the field. The study sites showed in Fig.1, include 23 communes: Nam Cuong (1), Nam Phuc (2), Nam Kim (3), Khanh Son 1 (4), Nam Trung (5), Khanh Son 2 (6), Nam Loc (7), Nam Tan (8), Nam Thuong (9), Nam Giang (10), Kim Lien (11), Xuan Lam (12), Hong Long (13), Hung Tien (14), Xuan Hoa (15), Van Dien (17), Nam Thanh (18), Nam Nghia (19), Nam Hung (20), Kim Lien (21), Nam Linh (22), Nam Xuan (23), Nam Anh (24), and Nam Dan town (16).

Samples of amphibians and lizards are collected by hand and caught with specialized tools for snakes (racquets, snakes sticks). For common species, we only collect one sample and observe them at the study sites. A total of 67 samples were collected.

Shaping: The sample is shaped in the tray according to the natural shape of the species, fixed shape with 10% formalin for 24 hours, then transferred to preserve in 70° alcohol. The specimens are kept at the Biological Museum of Vinh University, Viet Nam.

The scientific name of the species base materials were identified: Bourret (1942), Taylor (1963), Ziegler and Wolfgang (1999), Arnold et al. (2007), David et al. (2007), Hoang et al. (2008), Nguyen et al. (2009), Nguyen and Pham (2013), Murphy and Harold (2014), Oliver et al. (2015), Farkas et al. (2019) [4-13].

Scientific names of species follow Frost (2020), Uetz et al. (2019) [14,15]. The conservation status of species base on Vietnam Red Data Book (2007) and IUCN Red List species (2019) [16,17].



**Fig.1.** A Map study of Amphibians and Reptiles in Nam Dan district, Nghe An province, Vietnam Results.

Based on the analysis of collected specimens, we have identified 47 species, including 13 amphibian species and 34 reptiles species belonging to 36 genera, 19 families of 3 orders distributed in Nam Dan district, Nghe An province, Vietnam (45 species recorded by specimens, 2 species recorded by investigation) (see Table).

**Table**

**Checklist of Amphibians and Reptiles in Nam Dan district, Nghe An province, Vietnam**

No	Scientific name	Distribution	IUCN, 2019	Vietnam Red Data Book, 2007
	<b>AMPHIBIA</b>			
	<b>ANURA</b>			
	<b>Bufonidae</b>			
1.	<i>Duttaphrynus melanostictus</i> (Schneider, 1799)	1-24	LC	
	<b>Dicroglossidae</b>			
2.	<i>Fejervarya limnocharis</i> (Gravenhorst, 1829)	1-24	LC	
3.	<i>Hoplobatrachus rugulosus</i> (Weigmann, 1835)	1-24	LC	
4.	<i>Occidozyga lima</i> (Gravenhorst, 1829)	1-24	LC	
5.	<i>Occidozyga martensii</i> (Peters, 1867)	4,6	LC	
	<b>Hylidae</b>			
6.	<i>Hyla simplex</i> Boettger, 1901	7,15	LC	
	<b>Microhylidae</b>			
7.	<i>Kaloula pulchra</i> Gray, 1831	1-24	LC	
8.	<i>Microhyla fissipes</i> (Boulenger, 1884)	1-24	LC	
9.	<i>Microhyla heymonsi</i> Vogt, 1911	4,17	LC	
10.	<i>Microhyla pulchra</i> (Hallowell, 1861)	4,6	LC	
	<b>Ranidae</b>			
11.	<i>Hylarana macrodactyla</i> Günther, 1858	4,5,6	LC	
12.	<i>Sylvirana guentheri</i> (Boulenger, 1882)	1-24	LC	

	<b>Rhacophoridae</b>			
13.	<i>Polypedates mutus</i> (Smith, 1940)	1-24	LC	
	<b>REPTILIA</b>			
	<b>TESTUDINES</b>			
	<b>Geoemydidae</b>			
14.	<i>Cyclemys oldhami</i> Gray, 1863	20		
15.	<i>Cuora cyclornata</i> (Blankck, McCord & Le, 2006) **	20		CR
16.	<i>Cuora mouhotii</i> (Gray, 1862)	18,20	EN	
17.	<i>Malayemys subtrijuga</i> (Schlegel & Meller, 1884) **	20	VU	VU
	<b>Trionychidae</b>			
18.	<i>Pelodiscus variegatus</i> Bala'zs, Thomas, Cuong, An & Uwe, 2019*	5		
19.	<i>Pelodiscus sinensis</i> (Weigmann, 1834)	1,5	VU	
	<b>SQUAMATA</b>			
	<b>Agamidae</b>			
20.	<i>Physignathus cocincinus</i> (Cuvier, 1829)	4,6	VU	
21.	<i>Calotes versicolor</i> (Daudin, 1802)	3,4,6		
	<b>Gekkonidae</b>			
22.	<i>Gekko gecko</i> (Linnaeus, 1758)	3,4,6,7,20	LC	VU
23.	<i>Hemidactylus frenatus</i> Duméril & Bibron, 1836	1-24	LC	
	<b>Lacertidae</b>			
24.	<i>Takydromus kuehnei</i> Van Denburgh, 1909	4,6	LC	
25.	<i>Takydromus sexlineatus</i> Daudin, 1802	4,6	LC	
	<b>Scincidae</b>			
26.	<i>Eutropis longicaudata</i> (Hallowell, 1857)	1-24	LC	
27.	<i>Eutropis multifasciata</i> (Kuhl, 1820)	4,6	LC	
28.	<i>Lygosoma quadrupes</i> (Linnaeus, 1766)	4,6		
	<b>Varanidae</b>			
29.	<i>Varanus salvator</i> (Laurenti, 1786)	3,4,6,8	LC	EN
	<b>Pythonidae</b>			
30.	<i>Python molurus</i> (Linnaeus, 1758)	3,4,6	VU	CR
	<b>Xenopeltidae</b>			
31.	<i>Xenopeltis unicolor</i> Reinwardt 1827	1-24	LC	
	<b>Colubridae</b>			
32.	<i>Coelognathus radiatus</i> (Boie, 1827)	4,6,7,8,9,18, 19,20,21,22	LC	VU
33.	<i>Ptyas korros</i> (Schlegel, 1837)	1-24		EN
34.	<i>Ptyas mucosa</i> (Linnaeus, 1758)	4,6,7, 17,20,22		EN
35.	<i>Ptyas carinata</i> (Guther, 1858) *	3	LC	
36.	<i>Oligodon cinereus</i> (Günther, 1864)	17	LC	
37.	<i>Myrrophis chinensis</i> (Gray, 1842)	1-24		
38.	<i>Hypsiglossus plumbea</i> (Boie, 1827)	3,7,8		
39.	<i>Amphiesma stolatum</i> (Linnaeus, 1758)	4,6		
40.	<i>Rhabdophis subminiatus</i> (Schlegel, 1837)	4,6	LC	
41.	<i>Xenochrophis flavipunctatus</i> (Hallowell, 1861)	1-24	LC	
	<b>Elapidae</b>			
42.	<i>Bungarus fasciatus</i> (Schneider, 1801)	7,22	LC	EN
43.	<i>Bungarus multicinctus</i> Blyth, 1860	3	LC	
44.	<i>Naja kaouthia</i> Lesson, 1831 *	7,20	LC	
45.	<i>Ophiophagus hannah</i> (Cantor, 1836)	4,6,17	VU	CR
	<b>Typhlopidae</b>			
46.	<i>Indotyphlops braminus</i> (Daudin, 1803)	4,6		
	<b>Viperidae</b>			
47.	<i>Cryptelytrops albolabris</i> (Gray, 1842)	4,6,18	LC	

**Note:** Column 2: \*=New record for Herpetofauna of Nghe An Province, Viet Nam; \*\*=species recorded by interview. Column 3: numbers 1 to 24 are survey sites (see method and Fig.1).

Table 1 indicates that Colubridae is most diverse in the number of genera and species (8 genera with 22.22% of total genera, 10 species with 21.28% total species). Families Dicroglossidae and Geoemydidae with 3 genera (8.33% of total genera) and 4 species (8.51% of total species), Microhylidae also have 4 species but only have 2 genera. The rest families were less diverse.

According to Vietnam Red Book 2007, 10 species belonging to conservation list, including 3 species in level Critically Endangered (*Python molurus*, *Ophiophagus hannah*, and *Cuora cyclornata*), 3 species in Vulnerable (*Gekko reevesii*, *Coelognathus radiatus* and *Malayemys subtrijuga*), and 4 species in Endangered one (*Varanus salvator*, *Ptyas korros*, *Ptyas mucosa*, and *Bungarus fasciatus*).

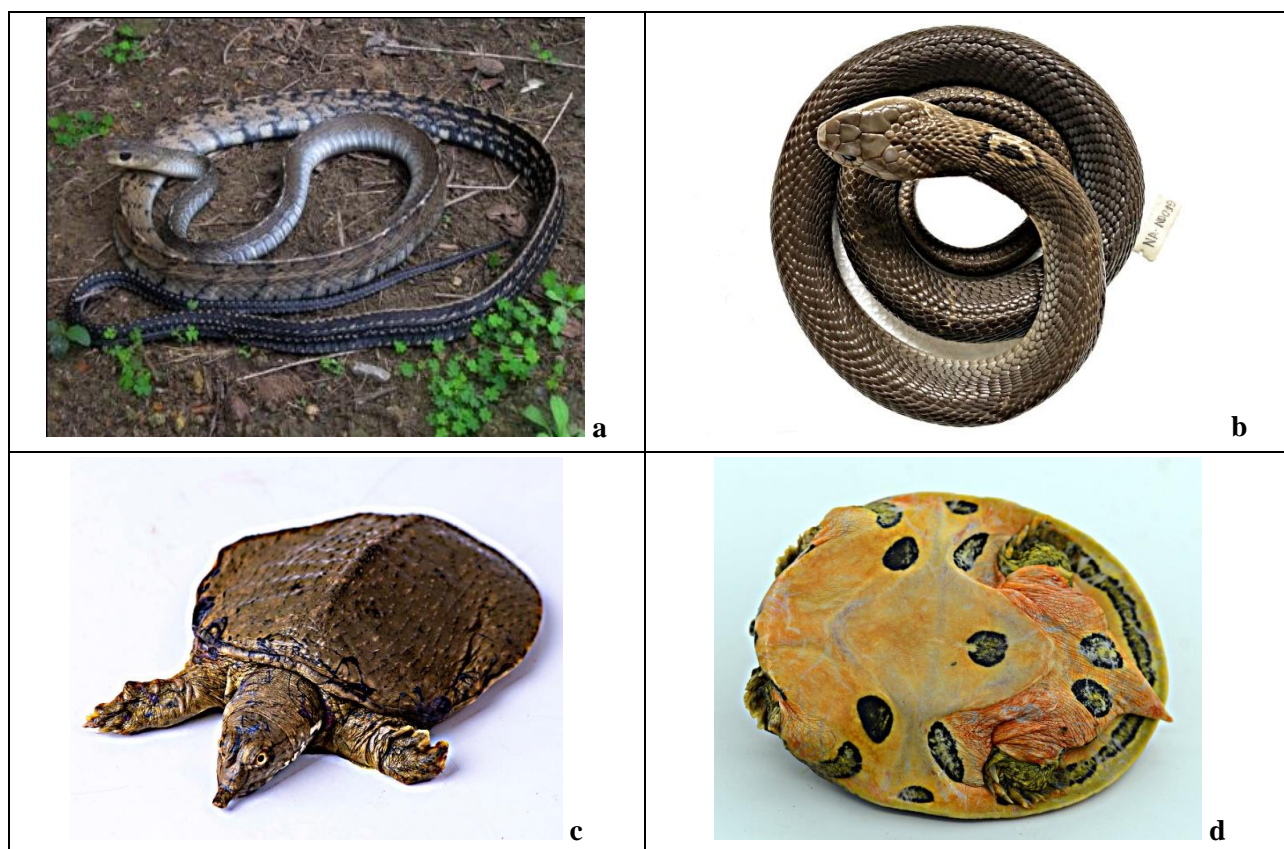
According to IUCN Red List species (2019): there were 5 species in level Vulnerable (*Malayemys subtrijuga*, *Pelodiscus sinensis*, *Physignathus cocincinus*, *Python molurus*, and *Ophiophagus hannah*) and one species in Endangered (*Cuora mouhotii*). Besides that, there were 30 species in level Least concern, however, the population of these species is decreasing in the wild in Vietnam.

### Discussion

So far, this is the first study on Amphibians and Reptiles in Nam Dan district, Nghe An province, Vietnam with 47 species (13 amphibian species and 34 reptiles species) belonging to 19 families, 36 genera, 3 orders.

Remarkable, in this study, for the first time are recorded two species of snakes: *Ptyas carinata* (Fig. 2a), *Naja kaouthia* (Fig. 2b) and one softshell turtle *Pelodiscus variegatus* (Fig. 2c, d) to Herpetofauna of Nghe An Province, Vietnam.

According to Nguyen et al. (2009), *Ptyas carinata* only distributed in Thua Thien-Hue, Da Nang and Binh Phuoc provinces; *Naja kaouthia* were recorded in provinces Quang Tri, Thua Thien-Hue, Lam Dong, DakLak, Kien Giang, and Ho Chi Minh city. Farkas et al. (2019) show that the distribution areas of *Pelodiscus variegatus* in the provinces Bac Giang, Ha Tinh, Hai Duong, Ninh Binh, Phu Tho, Quang Binh, Quang Nam, Tuyen Quang and Yen Bai of Vietnam as well as the lower reaches of the Gaogong and Wanquan rivers in Hainan Province, China.



**Fig.2.** The reptiles recorded for the first time for Nghe An province: *Ptyas carinata* (a), *Naja kaouthia* (b) and *Pelodiscus variegatus* (c, d).

### Conclusion

The results of the survey recorded 47 species of amphibians and reptiles belonging to 36 genera, 19 families of 3 orders in Nam Dan district, Nghe An province, Vietnam. The study area is important for conservation with 10 species listed in Vietnam Red Data Book (2007), and 5 species in IUCN Red List species (2019). These results also add to the Herpetology of Nghe An 3 species (*Ptyas carinata*, *Naja kaouthia*, and *Pelodiscus variegatus*).

### References:

1. HOANG, Q.X., HOANG, T.N., JOHN, A.G., CAO, T.T., HO, T.A., CHU, D.V. *Amphibians and Reptiles in Pu Huong Nature Reserve*. Hanoi: Agricultural Publishing House, 2008. 128 p.
2. HOANG, T.N., HOANG, Q.X., CAO, T.T., ONG, A.V., NGUYEN, L.T. Diversity of amphibians and reptiles in area Reserve Biosphere West Nghe An. In: *Proceedings in the 2<sup>nd</sup> National scientific workshop on Amphibians and Reptiles in Vietnam*, 2012, p.245-254.
3. LE, N.N., HOANG, Q.X. Preliminary results on composition species of Amphibian and Reptiles in Pu Mat nature reserve, Nghe An province. In: *Journal of biology*, Hanoi, 2001, 23(3b), p.59-65.
4. BOURRET, R. *Les Batraciens de L'Indochine*. Gouv. Gén. Indoch. Hanoi, 1942. 517 p.
5. TAYLOR, E.H. The Lizards of Thailand. In: *Science Bulletin*, the University of Kansas, 1963, vol.XLIV, no.14, p.687-1077.
6. ZIEGLER, T. & WOLFGANG, B. *Takydromus (Platyplacopus) kuehnei vietnamensis* ssp. n., eine neue Schnellläufereidechsen-Unterart aus Vietnam (Reptilia: Squamata: Lacertidae). *Salamandra*, Rheinbach, 1999, no.35(4), p.209-226.
7. ARNOLD, E. N., ARRIBAR, O. & CARRANZA, S. Systematics of the Palaearctic and Oriental lizard tribe Lacertini (Squamata: Lacertidae: Lacertinae), with descriptions of eight new genera. In: *Zootaxa*, 2007, 1430.
8. DAVID, P., BAIN, R.H., NGUYEN, Q.T., ORLOV, N.L., VOGEL, G., VU, N.T & ZIEGLER, T. A new species of the natriciene snake genus *Amphiesma* from the Indochinese Region (Squamata: Colubridae: Natricinae). In: *Zootaxa* 1462, 2007, p.41-60.
9. NGUYEN, V.S., HO, T.C, NGUYEN, Q.T. *Herpetofauna of Vietnam*. Frankfurt am Main: Chimaira, 2009. 768 p.
10. NGUYEN, Q.T., PHAM, T.C. *Identify some amphibian and reptile species that are often trafficked in Vietnam*. Hanoi: Agricultural Publishing House, 2013. 43 p.
11. MURPHY, J.C., HAROLD, V.A Checklist and Key to the Homalopsid Snakes (Reptilia, Squamata, Serpentes), with the description of new genera. In: *Fieldiana, Life and Earth Sciences*, 2014, no8.
12. OLIVER, L.A., PRENDINI, E., KRAUS, F., RAXWORTHY, C.J. Systematics and biogeography of the *Hylarana* frog (Anura: Ranidae) 4 radiation across tropical Australasia, Southeast Asia, and Africa. In: *Phylogenetics and Evolution*, 2015. 18 p.
13. FARKAS, B., ZIEGLER, T., PHAM, C.T., ONG, A.V., FRITZ, U. A new species of *Pelodiscus* from northeastern Indochina (Testudines, Trionychidae). In: *ZooKeys* 824, 2019, p.71-86.
14. FROST, DARREL R. *Amphibian Species of the World: an online reference*. Version 6. Accessed: 08.02.2020. <https://amphibiansoftheworld.amnh.org>
15. UETZ, P., FREED, P., HOŠEK, J. (eds.). *The Reptile Database*. Accessed: 08.02.2020. <http://www.reptile-database.org>
16. Ministry of Science and Technology, Vietnam Academy of Science and technology. *Vietnam Red Data Book (Part I. Animals)*. Hanoi: Natural Science and Technology Publishing House, 2007, p.19-21.
17. IUCN 2020. *The IUCN Red List of Threatened Species*. Version 2019-3. <https://www.iucnredlist.org>

### Acknowledgment

We are grateful to the partial funding from the project "Research on biodiversity of vertebrates in the high mountain area Southwest of Nghe An", Code B2020-TDV-07.

### Data about authors:

**Ong Vinh AN**, doctor in Biology, Vinh University, Vietnam.

**E-mail:** an.ongvinh@yahoo.com.vn

**Hoang Ngoc THAO**, associate Professor, doctor in Biology, Hong Duc University, Vietnam.

**E-mail:** hoangngocthao@hdu.edu.vn

**Hoang Xuan QUANG**, associate Professor, doctor in Biology, Vinh University, Vietnam.

**E-mail:** hoangxuanquang44@gmail.com

**Nguyen Thi TUYET**, master in Biology, Cua Lo high school, Vietnam.

**E-mail:** nguyentuyet020884@gmail.com

**Ho Anh TUAN**, doctor in Biology, Vinh University, Vietnam.

**E-mail:** hoanhtuan18@gmail.com

Prezentat la 11.03.2020