

## DEATH FEIGNING BEHAVIOR IN THREE COLUBRID SPECIES OF TROPICAL ASIA

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**Gernot Vogel(1) and Hans Kam Han-Yuen(2)**

(1) Im Sand 3, D-69115 Heidelberg, Germany; E-mail: Gernot.vogel@t-online.de

(2) 07-67&68, 7th Floor, Berjaya Times Square, Jalan Imbi, 55100 Kuala Lumpur, Malaysia;

E-mail: hans@naturemalaysia.com

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Death feigning was reported for the first time for the species *Coleognathus radiatus* and *Macrocalamus chanardi*

In *Xenochrophis piscator* this behavior is reported for the second time since 1947. These are the first reports on death feigning in snakes for the Indochinese and Malayan subregions.

**Keywords:** death feigning, *Coelognathus radiatus*, *Macrocalamus chanardi*, *Xenochrophis piscator*, Oriental region.

Death feigning, or thanatosis, is a form of defense behavior, in which an animal becomes immobile as if dead (McFarland, 1981). It is shared by mammals (e.g., Francq, 1969), birds (e.g., Sargeant and Eberhardt 1975), fishes (e.g., Howe, 1991), reptiles (e.g., Gehlbach, 1970), amphibians (e.g., Sazima, 1974; McCallum, 1999), mites (e.g., Ebermann, 1991), and insects (e.g., Fabre, 1900; Miyatake et al., 2008).

Death feigning is a behavior that has long been known in some snake species. Until now, it has been observed in the following genera:

*Coluber* (Lynch, 1978), *Diadophis*, *Farancia*, *Hemachatus*, *Heterodon*, *Lampropeltis* (Tryon and Guese, 1984),

*Leptomicrurus*  
(  
*L. dulcis*  
and  
*L. scutifrons*  
only [Visser, 1966]),  
*Lystrophis*  
(Shaw and Campbell, 1974),  
*Masticophis*  
(Smith, 1975; Tucker, 1989; Pflanz and Powell, 1990),  
*Micrurus*  
(  
*M. fulvius*  
only),  
*Naja*  
(  
*Naja*  
*haje*  
[Dickinson, 1948],  
*N. nigricollis*  
[Ionides, 1952]),  
*Natrix*  
(e.g., Ushakov, 2007, Fig. 1)  
*Rhabdophis*  
(  
*R. tigrinus*  
[Mutoh, 1983]),  
*Sonora*  
,  
*Storeria*  
(Jordan, 1970; Liner, 1977),  
*Virginia*  
(Thomas and Hendricks, 1976), and  
*Xenochrophis*  
(MacDonald, 1947).

In some genera, only a sole species demonstrates this behavior, while in *Diadophis punctatus*, it is known only from some subspecies. Mori and Burghardt (2007) tested the anti-predator behavior of 27 species of natricine snakes, but death feigning was observed only in one of them.

There seems to be several different types of death feigning. Some species roll over before

remaining rigid (Jordan, 1970; Thomas and Hendricks, 1976); some do not stay rigid at all and remain limp during the display (e.g., Tryon and Guese, 1984; Mutoh, 1983). A few species turn on their backs while playing dead (e.g., Doody et al., 1996), while others do not (e.g., Dickinson, 1948), and some open the mouth (e.g., Jordan, 1970; Mori and Burghardt, 2008), but other species keep the mouth shut (e.g., Mutoh, 1983; Doody et al., 1996). Some species show specific behavior while death feigning; for example, “neck bowing” in *Rhabdophis tigrinus* (Mutoh, 1983), which was observed in some localities in Japan.

However, death feigning was not noted in other species of the genus *Rhabdophis*, which occurs in the Indo-Malayan region.

## MATERIAL AND METHODS

Observations were made on free-living snakes at five different localities by four different observers.

Specimens were collected for the purpose of being photographed, after which they were released. Notes on the behavior were made shortly after the events to ensure accurate descriptions of the circumstances and observations. In the case of *Macrocalamus* (case 4) no notes were made.

# Death feigning behavior in three colubrid species of tropical Asia

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*Coluber bitorquatus* (Macleay, 1881) - Peninsular Malaysia



*Geokoronopsis reticulata* (Macleay, 1881) - Peninsular Malaysia



*Geokoronopsis radiata* (Günther, 1859) - Peninsular Malaysia



Figure 4. Death feigning by *Macrocalamus chanardi*, Cameron Highlands, West-Malaysia,

The first photograph shows a bright red snake (Macrocalamus chanardi) on a rocky surface. The second photograph shows a dark snake with a red tongue (Xerobolus piscator) on a rocky surface. The text below the images is heavily obscured by a large black redaction box.