International Journal of Agricultural and Applied Sciences, June 2022, 3(1):124-127
https://www.agetds.com/ijaas
ISSN: 2582-8053
https://doi.org/10.52804/ijaas2022.3120

**Research Article**

OPEN ACCESS

# New locality record of Yellow-bellied House Gecko *Hemidactylus flaviviridis* Ruppell, 1835 a potential biological controller, from Shikohabad, Firozabad district, Uttar Pradesh (India) with its systematic account, distribution and other aspects

**Akhlaq Husain[1] and Wajid Hasan[2]**
[1](*Zoological Survey of India, Former Scientist-E), 41, Hari Vihar, Vijay Park, Chakrata Road, Dehradun, Uttarakhand, India.*
[2]*Krishi Vigyan Kendra, Jehanabad, Bihar Agricultural University, Sabour, Bihar, India*
*Corresponding author e-mail: drakhlaqhusain@gmail.com*
(**Received:** 15/12/2021; **Revised:** 10/04/2022; **Accepted:** 09/06/2022)

**ABSTRACT**
*Hemidactylus flaviviridis*, the Yellow-bellied House Gecko, belonging to family Gekkonidae, commonly found in North India but its locality records are meagre. Recently a good number of these geckoes were sighted by the author at Shikohabad (Firozabad district, Uttar Pradesh) which is not in records and hence the gecko has been reported here for the first time from the area with its systematic account, distribution, habitat, food & feeding, breeding and trematode infestation.
They are also found to be the potential biological controllers as feed on various insect pests on gardens vegetation around and mosquitoes which fly out under light in night.
**Keywords:** New locality record, *Hemidactylus flaviviridis*, Shikohabad (Uttar Pradesh).

## INTRODUCTION

*Hemidactylus flaviviridis* Ruppell, 1835 (Reptilia: Squamata: Sauria: Gekkonidae), the Yellow-bellied House Gecko, belonging to family Gekkonidae, is generally found in northern India (Smith, 1935; Tikader & Sharma, 1992; Sharma, 2005) but Anderson (1999) indicated that populations of these geckos occurring elsewhere are introduced through anthropogenic activities and trade.
The lizard fauna of Uttar Pradesh is meagerly known (Hellermann *et al*., 2001; Das *et al*., 2012; Ansari, 2018). Kannuagia *et al*. (2017) though listed some species from Uttar Pradesh but didn't mention their locality or the district.
Recently good numbers of *Hemidactylus flaviviridis* were sighted at a residence in Shikohabad, District Firozabad, located in south-west of Uttar Pradesh state, which has not been recorded earlier from the area (as per the literature) and hence reported here. This will be the first record of any lizard from the area. This species commonly exhibits anomalies in tail as reported by various workers during the past (Woodland, 1920; Das, 1932; Singh, 1939; Kumbar *et al*.,2011; Vyas,2016; Vyas & Upadhyay, 2020 and Bhattarai *et al*.,2020). A specimen with bifurcated tail was seen here also but unfortunately could not be photographed. Patra *et al*. (2017) studied trematode infestation in the gecko.

## STUDY SITE: RUKANPUR, SHIKOHABAD

**Location:** Shikohabad (27.6° 29' N Lat. and 78.35° 12' E Long. with 252 m altitude) is a town in Firozabad district in south-west of Uttar Pradesh. Rukanpur is a residential area on Etawah road.
**Climate:** Hot with around 34° C temperature and 60% humidity in September, no rain at study time.
**Flora at Chowk HAH:** *Azadirachta indica* (*Neem*) *Bougainvillea glabra* (Paper Flower); *Delonix regia* (*Gulmohar*) *Monoon longifolium* (False Ashoka), *Sabal palmetto* (Sabal Palm) and some flowering plants.

## SYSTEMATIC ACCOUNT, DISTRIBUTION AND OTHER ASPECTS

*Hemidactylus flaviviridis* Ruppell, 1835
**Synonymy:**
*Hemidactylus flaviviridis* Ruppell, 1835. *Neue. Wirb. Faun. Abyss.*: 18, pl. 6, fig. 2 (type-locality: Insel Massua, Abessinien [currently Massawa Island, Eritrea]); Theobald, 1876. *Descriptive catalogue of the reptiles of British India*; Boulenger, 1885. *Catalogue of the lizards in British Museum* (*Nat. Hist.*), 1: 113; Anderson, 1895. *Proc. Zool. Soc. London*, 1895: 642; Anderson, 1898. *Zool. Egypt*: 77, pl. 5, fig. 5; Boulenger, 1912. *Faun. Maly Pen.*: 44; Prashad, 1916. *J. Bombay nat. Hist. Soc*., 24: 834-838; Woodland, 1920. *Jourtnal of Microscopical Science*, New Series, 65: 63-100; Hora, 1923. *Rec. Indian. Mus*., 25: 372; Das, 1932. *J. Bombay*

*nat. Hist. Soc*., 35 (4): 657-662; Smith, 1935. *Faun. Brit. India*. Reptilia and Amphibia, 2-Sauria: 98; Schmidt, 1939. *Publ. Field Mus. nat. Hist.*, Zool. Ser., 24: 49-92; Simmonds, 1958. *Bulletin of Entomological Research*, 49 (3): 601-612; Singh, 1939. *Proc. Indian Acad. Sci*., Section B, 9: 316-322; Sanyal & Prasad, 1967. *Copeia*: 627-633; Bharos, 1989. *J. Bombay nat. Hist. Soc*., 86: 462; Tikader & Sharma, 1992. *Handbook Indian Lizards*: 60-61, pl. 29B, map 9; Kluge, 1993; Rosler, 2000: 85; Hallermann *et al*., 2001. *Russian Journal of Herpetology*, 8 (1): 59-68; Sharma, 2005. *Fauna India*, Reptilia (Sauria), 2: 115-117; Das *et al*., 2011. *North-western Journal of Zoology*, 7 (1): 98-104; Kumbar *et al*., 2011. *Herpetological Review*, 42: 94; Das *et al*., 2012. *Journal of Threatened Taxa*, 4 (5): 2557; Lajmi *et al*., 2016. *Organism, Diversity & Evolution*; Vyas, 2016. *Reptiles & Amphibians*, 23 (2): 108-109; Kanaujia *et al*., 2017. *Biological Forum- An International Journal*, 9 (1): 123; Nasrabadi *et al*., 2017. *Zootaxa*, 4227 (3): 431-443; Patra *et al*., 2017. *Entomology and Zoology Studies*, 5 (2): 189-192; Ansari, 2018. *Amphibian & Reptile Conservation*, 12 (2) [General Section]: 92; Bhattarai *et al*., 2020. *Reptiles & Amphibians*, 27: 48-49; Vyas & Upadhyay, 2020. *Reptiles & Amphibians*, 27 (3): 539-540.

*Hemidactylus sericeus* Fitzinger, 1826. *Neue classification der reptilian nach ihren natuerlichen verwandtschaften: nebst einer verwandtschafts-tafel und einem verzeichinisse der reptilian-sammlung des K. K. zoologischen museum's zu Wien*: 46.

*Hemidactylus coctaei* Dumeril & Bibron, 1836. Erp. Gen., 3: 365 (type-locality: Bengal and Bombay); Murray, 1854. *Zool. Sind*: 359; Stoliczka, 1872. *J. Asiat. Soc. Bengal*, 41 (2): 98; Blanford, 1876. *Proc. Zool. Soc. London*, 1876: 636; Boulenger, 1885. *Cat. Liz. Brit. Mus*., 1: 137; Boulenger, 1890. *Faun. Brit. India*: 92; Boulenger, 1887. *Ann. Mag. Nat. Hist*., 20 (5): 407; Boettger, 1892. *Ber. Tat. Offenb. Ver. Nat.*, Offenbach, 29-32: 61-63.

*Boltalia sublaevis* Gray, 1842. *Zool. Misc*., 2: 58 (type-locality: India); Kelaart, 1854. *Ann. Mag. Nat. Hist*, 13 (2): 138.

*Boltalia sublevis* Gray, 1842. *Zoological Miscellany*, 2: 58.

*Hoplopodion cocteaui* Fitzinger, 1843. *Braumueller et Seidel*, Wien: 104 (nom. subst.).

*Hoplopodion rueppellii* Fitzinger, 1843. *Braumueller et Seidel*, Wien: 104.

*Hemidactylus bengaliensis* Anderson, 1871. *J. Asiat. Soc. Bengal*, 40 (2): 14 (type-locality: Bengal); Boulenger, 1885. *Cat. Liz. Brit. Mus*., 1 (invalid emendation).

*Hemidactylus flavoviridis* Matschie, 1893. *Sber. Ges. naturf. Freunde*, Berlin: 24-31; Schlueter, 2008. *Natur und Tier Verlag*, Muenster: 64 pp.

*Hemidactylus zolii* Scortecci, 1929.*Una nuova specie di Hemidactyls dell' Eritrea: Hemidactylus zolii. Atti della Scocieta Italiana di Scienze Naturali e del Museo Civico di Stonia Naturale in Milano*, 68: 116 (vide Loveridge, 1947. *Bull. Mus. Comp. Zool. Harvard*, 98: 1-469).

*Hemidactylus flaviridis*, Schlueter, 2008. *Natur und Tier Verlag*, Muenster: 64 pp. (in error).

**Common Names:** Common House Lizard, House Gecko, House lizard, Indian House Lizard, Northern House Gecko, Yellow-belly Gecko, Yellow-bellied Gecko, Yellow-bellied House Gecko, Yellowish-green House Gecko.

**Vernacular Name:** *Chhipkali* (in Hindi).

**Etymology:** Named after Latin word *flavus*= yellow + *L. viridis*= green (referring to its colouration).

**Sighting:** Few examples; residences and mosque, Chowk Haji Aijaz Husain, Rukanpur, Shikohabad, District Firozabad, Uttar Pradesh; 1-7.ix.2021; by the first author.

**Figure 1.** *Hemidactylus flaviviridis* Ruppell

**Diagnostic Features:**

**Body and Head:** Medium-sized; body with small glandular scales above, intermixed with few enlarged tubercles which more often absent; head prominent, covered with minute granules, large and more prominent on snout, ear-opening semi-circular, supra labials 12-15 and infralabials 10-12, mental shield large and sub-triangular, two pairs of post mentals (inner larger than outer), rostral broader than high, nostrils lie between rostral, first labial and 2-3 small scales.

**Limbs:** Digits dilated with subdigital lamellae, a terminal and one and 1-2 basal lamellae single, rest divided; length of free distal phalange of outer digits half or more of their associated subdigital pad; digit 1 of manus more than half of digit 2; 10-14 lamellae under 4$^{th}$ finger and 7-10 lamellae under 1$^{st}$ toe, 11-14 under 4$^{th}$ toe.

**Tail:** Swollen at base and without sharp, denticulated lateral edge (though with a ventro-lateral row of small tubercles).

**Male:** 5-7 femoral pore on each side (Smith, 1935; Tikader & Sharma, 1992; Sharma, 2005; Lajmi *et al*., 2016).

**Colouration:** Variable depending on habitat and season but generally greenish-grey above with indistinct undulating transverse bands edged with white; tail also with such bands, yellow ventrally. Prashad (1916) observed pale grey in early summer and dark grey with five wavy dark cross bands later in season.

Size: Snout-Vent length 9.0 cm, tail 9.0 cm (Smith, 1935); body length 4.20-9.00 cm, tail 3.80-9.00 cm (Tikader & Sharma, 1992; Sharma, 2005); up to 18.00 cm in total length (indiabiodiversity.org).

**Tail Anomaly:** Vyas & Upadhyay (2020) found a female with two regenerated tails, one in the normal position and the other emerging at a right angle from the base of the tail. It has earlier been reported by Woodland (1920) Das (1832), Singh (1939), Kumbar *et al*. (2011), Vyas (2016) and Bhattarai *et al*. (2020).

**Distribution:** Wide-spread in northern and eastern India (mainly above 20º N).

**Uttar Pradesh:**

Firozabad district: Shikohabad (present new record).

Rest of Uttar Pradesh: Bahraich (Katarniaghat Wildlife Sanctuary; Nishangara) and Gautam Budh Nagar (Surajpur Lake site) districts.

**Rest of India:** Andhra Pradesh, Assam (Cachar / Kachar; Guwahati), Bihar, Chhattisgarh, Delhi, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Madhya Pradesh, Maharashtra (Mumbai), Meghalaya (Khasi Hills), Mizoram, Odisha, Punjab and Rajasthan, Uttarakhand and West Bengal.

As regards distribution in southern India, Das *et al*. (2011) reported "The only vouchered record from southern India is one with vague locality 'Cote de Malabar" [coastal Karnataka or Kerala]".

**Elsewhere:** Afghanistan, Bahrain, Bangladesh, China, Egypt, Eritrea, Ethiopia, Iran, Iraq, Japan (possible introduction), Kuwait, Malaysia, Nepal, N. Somalia, Oman, Pakistan, Qatar, Saudi Arabia, Red Sea shores, Sinai, Somalia, Sudan, United Arab Emirates (introduced) and Yemen (Socotra Island).

Theobald (1876) gave its distribution from "Birmah" [Burma= Myanmar) along with other areas.

**Food and Feeding:** Being insectivorous, feeds on insects including pest insects and other arthropod groups. Bharos (1989) found it feeding on caterpillars also.

At Shikohabad, since there were no insects on house wall under light, they were found hunting black ants on ground, which is unusual feeding behaviour.

**Breeding:** Oviparous. Breeding starts during summer months (Sanyal & Prasad, 1967) when males attract females by vocalizing with subdued grinding noise and then mating takes place. During courtship male bites the neck of potential female. Daniels (2002) noted the fights as following a set sequence, "a slow approach towards each other followed by a manoeuvring around, while the tail is twitched slowly and sinuously as a cat does. These preliminaries are followed by a sudden rush which may terminate either in fight and flight by the weaker animal or flight without a fight." Female lays two white spherical eggs (rarely 1 or 3), measuring 14 mm in length and around 8-9 mm in dimension, in crevices, holes on any hidden place. The eggs remain attached to each other and the substratum. Incubation period ranges between 33-57 days. Double egg teeth, present in hatchlings, help them in emergence from the eggs. They reach sexual maturity within one year (Sanyal & Prasad, 1967; Tikader & Sharma, 1992; Daniels, 2002).

**Behaviour:** Nocturnal, retreats to hideouts during day time. Territorial and maintain a hunting territory. During winters live in torpid condition in hideouts but come out in summer and become active (Daniel, 2002).

Nematode Infestation: Patra *et al*. (2017) studied trematode infestation by scanning electron microscopy from different localities of Aizwal district, Mizoram (India).

**Potential Biological Controller:** Being insectivorous, it feeds on insects including plant pest, mosquitoes etc. in kitchen gardens, flowering beds and dwelling compounds indirectly help in their control and hence these should not be killed of eradicated in fear. Simmonds (1958) studied the effect of some lizards on biological control of scale insects' pests.

**ACKNOWLEDGEMENTS**

The first author is thankful to family members for their help in providing information on plants around.

**REFERENCES**

Anderson, S. C., 1999. *The lizards of Iran. Society for the study of Amphibians and Reptiles Contributions to Herpetology*, **15**: 1-442. Society for the study of Amphibians and Reptiles, Ithaca, New York, USA.

Ansari, N. A., 2018. Enumeration of herpetofaunal assemblage of Surajpur Wetland, National Capital Region (India). *Amphibian & Reptile Conservation*, **12** (2) [General Section]: 90-97.

Bharos, A, M. K., 1989. Caterpillar in the diet of house gecko. *J. Bombay nat. Hist. Soc*., **86**: 462.

Bhattarai, S., Lamichane, B. R. and Subedi, N., 2020. Tail bifurcation in a Yellow-bellied House Gecko, *Hemidactylus flaviviridis* Ruppell, 1935, in Chiwan, Nepal. *Reptiles & Amphibians*, **27**: 48-49.

Daniels, J. C., 2002. *The Book of Indian Reptiles and Amphibians*: 238 pp. Bombay Natural History Society / Oxford University Press.

Das, G. M., 1932. Observations on the trifid tails in two specimens of *Hemidactylus flaviviridis*, Ruppell, with a note on the artificial regeneration of double and triple tails of the "Tokhak" lizard, *Gecko verticillatus*, Laurenti. *J. Bombay nat. Hist. Soc*., **35**: 657-662.

Das, A., Basu, D., Converse, L. and Chaudhuri, A., 2012. Herpetofauna of Katarniaghat Wildlife Sanctuary, Uttar Pradesh, India. *Threatened Taxa*, **4** (5): 2553-2568.

Das, M., Pukayastha, J., Bauer, A. and Sengupta, S., 2011. *Hemidactylus flaviviridis* Ruppell, 1835 (Sauria: Gekkonidae) an invasive gecko in Assam. *North-western Journal of Zoology*, **7** (1): 98-104.

Hallermann, J., Anjanjeva, N. B. and Orlov, N. L., 2001. On a remarkable collection of reptiles and amphibians collected by German Expedition 1955-1958. *Russian Journal of Herpetology*, **8** (1): 59-68.

Kanaujia, A., Kumar, A. and Kumar, A., 2017. Herpetofauna of Uttar Pradesh, India. *Biological Forum- An International Journal*, **9** (1): 118-130.

Kumbar, S. M., Ghadage, A. B. and Shendage, V. M., 2011. *Hemidactylus flaviviridis* (House Gecko), bifurcation. *Herpetological Review*, **42**: 94.

Lajmi, A., Giri, W. B. and Karanth, P. K., 2016. Molecular data conjunction with morphology help resolve the *Hemidactylus brookii* complex (Squamata: Gekkonidae). *Organism, Diversity & Evolution*. DOD 10.1007/s13127-016-0271-9.

Patra, G., Roy, L., Ghosh, S., Devi, C. N., Borthakur, S. K., Lalrinkima, H., Lalliankimi, H. and Khatiresan, D., 2017. Study on house lizard (*Hemidactylus flaviviridis*) trematode by scanning electron microscopy from different localities of Aizwal district, Mizoram, India. *Journal of Entomology and Zoology Studies*, **5** (2): 189-192.

Prashad, B., 1916. Some observations on a common house lizard (*Hemidactylus flaviviridis* Ruppell) of India. *J. Bombay nat. Hist. Soc*., **24**: 834-838.

Sanyal, M. K. and Prasad, M. R. N., 1967. Reproductive cycle of the Indian House Lizard *Hemidactylus flaviviridis* Ruppell. *Copeia*: 627-633.

Sharma, R. C., 2005. *The Fauna of India and the adjacent countries*- Reptilia (Sauria), 2: 1-430. Zoological Survey of India Publication (First published, 2002).

Simmonds, F. J., 1958. The effect of lizards on the biological control of scale insects in Bermuda. *Bulletin of Entomological Research*, **49** (3): 601-612. (published online by Cambridge University Press: 10 July, 2009).

Singh, S. M., 1939. A peculiar case of caudal abnormality in *Hemidactylus flaviviridis* Ruppell. *Proc. Indian Acad. Sci*., Section B, **9**: 316-322.

Smith, M. A., 1935. The Fauna of British India including Ceylon and Burma. *Reptilia and Amphibia*, 2. Sauria: ix + 440 pp. Taylor & Francis, London.

Theobald, W., 1876. *Descriptive catalogue of the reptiles of British India*: x + 238 + xxxviii + xiii pp. Thacker, Spink and Co., Calcutta.

Tikader, B. K. and Sharma, R. C., 1992. *Handbook Indian Lizards*: 259 pp. Zoological Survey of India Publication.

Vyas, R., 2016. Bifid tails in two Indian Lizards. *Reptiles & Amphibians*, 23 (2): 108-109.

Vyas, R. and Upadhyay, K., 2020. A bifid tail in a Northern House Gecko, *Hemidactylus flaviviridis* Ruppell 1835, in Gujarat, India. *Reptiles & Amphibians*, **27** (3): 539-540.

Woodland, W. N. F., 1920. Some observations on caudal autonomy and regeneration in the gecko (*Hemidactylus flaviviridis*, Ruppell), with notes on the tail of *Sphenodon* and *Pygopus*. Qauarterly *Jourtnal of Microscopical Science*, New Series, **65**: 63-100.

https://indiabiodiversity.org/species/show/276169

**Citation:** Husain, A. and Hasan, W. 2022. New locality record of Yellow-bellied House Gecko *Hemidactylus flaviviridis* Ruppell, a potential biological controller, from Shikohabad, Firozabad district, Uttar Pradesh (India) with its systematic account, distribution and other aspects. *International Journal of Agricultural and Applied Sciences*, 3(1):124-127. https://doi.org/10.52804/ijaas2022.3120