

# NATURAL HISTORY MISCELLANEA

Published by

The Chicago Academy of Sciences

Lincoln Park - 2001 N. Clark St., Chicago 14, Illinois

---

No. 112

September 26, 1952

---

## **A Synopsis of the Snakes of the Genus *Heterodon*, with the Diagnosis of a New Race of *Heterodon* *nasicus* Baird and Girard<sup>1</sup>**

Richard A. Edgren<sup>2</sup>

Studies on the variability of the three species of the genus *Heterodon*, carried on during the past several years, have disclosed a new subspecies of *Heterodon nasicus* and have shown that *Heterodon platyrhinos browni* Stejneger is not represented by a sufficiently distinct population to warrant continued recognition. As publication of the general study will be delayed for some time, it seems desirable to present a brief summary of the taxonomic conclusions, together with a key to the five recognizable nominal entities of the genus.

### *Heterodon platyrhinos* Latreille

*Heterodon platyrhinos* Latreille, 1801, in Sonnini and Latreille, Hist. Nat. Rept., iv, p. 32; Edgren, 1952a, Bull. Zool. Nomencl., in press; Edgren, 1952b, Science, in press.

**Diagnosis.** The largest species of the genus *Heterodon*, characterized by a single azygous scale (occasionally none at all); scale formula generally 2525-19; male ventrals 114-141, female, 128-154.

**Range.** Throughout the eastern United States north to southern Vermont, New Hampshire, New York, and Ontario; west to southeastern South Dakota, eastern and central Nebraska, Kansas, Oklahoma and eastern Texas.

**Remarks.** I am unable to consider the currently recognized *Heterodon platyrhinos browni* Stejneger as representing a valid subspecies. This race has

<sup>1</sup>This paper is a portion of a dissertation submitted to the Graduate School of Northwestern University in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

<sup>2</sup>Present address: Division of Biological Research, G. D. Searle and Company, P. O. Box 5110, Chicago 80, Illinois.

been diagnosed on the basis of the absence of the azygous plate and a lower number of dark dorsal blotches. Material from Dade County, Florida shows an unusually high proportion of individuals lacking the azygous or with the plate considerably reduced (about 60 per cent). In addition, both dorsal blotch counts and ventral plates are significantly lower in south Florida. The azygous trait is not sufficiently regular in expression to be considered diagnostic of a subspecies in the light of most modern definitions of subspecies; number of blotches and number of ventral plates represent the end points of clines, which are hardly worthy of nominal recognition. *Heterodon platyrhinos browni* seems best relegated to the synonymy of the then monotypic *Heterodon platyrhinos*.

### ***Heterodon simus* Linnaeus**

*Heterodon simus* Linnaeus, 1767, *Systema Naturae*, ed. 12, p. 375; Edgren, 1952a, b, loc. cit.

*Diagnosis:* The smallest species of the genus. Dorsal scale formula generally 25-25-21; a series of 3-14 scales in the azygous area; rostral turned up rather sharply; male ventrals less than 122, females with less than 134.

*Range.* Restricted almost entirely to the Coastal Plain of the southeastern United States. Southeastern North Carolina, most of South Carolina, except for the western tip, southern Georgia and Alabama, and extreme southern Mississippi; the Florida panhandle, and peninsular Florida at least as far south as Pinellas and Brevard Counties.

*Remarks.* A rare and interesting species scarcely differentiated from *H. platyrhinos* with which it may hybridize occasionally.

### ***Heterodon nasicus* Baird and Girard**

*Heterodon nasicus* Baird and Girard, 1852, Rep. Stansbury's Exp., p. 352-353.

*Diagnosis.* Intermediate in size between *simus* and *platyrhinos*; dorsal scale rows generally 23-23-19; 2-28 scales in the azygous area; loreals absent, single, double or multiple; rostral very sharply turned up at the tip; ventrals 128-145 in males, 138-156 in females; dorsal blotches 23-52 anterior to the vent in males, 30-50 in females.

### ***Heterodon nasicus nasicus* Baird and Girard**

*Heterodon nasicus nasicus* Cope, 1892, Proc. U. S. Nat. Mus., xiv, p. 644-645.

*Diagnosis:* A series of 9-28 scales in the azygous area; dorsal blotches more than 35 in males and more than 40 in females. Generally two or more loreals on each side.

*Range.* Texas panhandle and adjacent New Mexico north through western Oklahoma and Kansas to southwestern Manitoba and southeastern Saskatchewan in Canada; prairie portions of Minnesota, and prairie relicts in Illinois; eastward extension along the Prairie Peninsula in Missouri is to be expected.

***Heterodon nasicus gloydi* new subspecies**

*Diagnosis.* Generally similar to *Heterodon nasicus nasicus*; lepidosis identical. Color pattern and intensity differ somewhat from the typical subspecies. Dorsal blotches less than 32 (23-32) anterior to the vent in males; less than 37 (28-37) in females. The individual blotches tend to be obscured; they are generally a light grayish-brown and are not sharply defined by black borders, as is generally the case in *nasicus nasicus*. Ground color grayish-tan, not much differentiated from the color of the blotches. The coloration of the snake gives the appearance of being faded.

*Type and type locality.* Type specimen USNM 5083, female from Wheelock, Robertson County, Texas, collected by Kellogg. Paratypes: USNM 5083, two males, same locality and collector as type.

*Range.* Southeastern Kansas and southeastern Missouri, eastern Oklahoma, and all of Texas except for the panhandle, trans-Pecos Texas, and the extreme southern Rio Grande Valley.

*Remarks.* This race intergrades with *nasicus nasicus* along a fairly broad belt extending from east central Kansas, through central Oklahoma and diagonally across Texas just south of the panhandle.

It gives me pleasure to name this new race for Dr. Howard K. Gloyd.

***Heterodon nasicus kennerlyi* Kennicott**

*Heterodon kennerlyi* Kennicott, 1860, Proc. Acad. Nat. Sci., Philadelphia, p. 336.

*Diagnosis.* Similar to *H. n. gloydi* in most respects but with only 2-6 azygous scales; loreals generally single (occasionally double or absent).

*Range.* Mexico from Tamaulipas and central San Luis Potosi north and west along the Cordillera Occidental, invading the United States in extreme southern Rio Grande Valley, trans-Pecos Texas, southwestern New Mexico and southeastern Arizona.

*Remarks.* Probably intergrades with *Heterodon nasicus gloydi* in south Texas and southeastern New Mexico and with *Heterodon nasicus nasicus* in southwestern New Mexico. Intermediates are surprisingly few from the area of expected intergradation; this may be either the result of limited collecting,

or perhaps it indicates the evolution of a high degree of genetic isolation, allowing only slight genic introgression between *kennerlyi* and the other two races.

#### Key to the Snakes of the Genus *Heterodon*

The following key will allow designation of all species of the genus and about 85 per cent of the specimens of *nasicus* to subspecies.

- |  |                     |
|--|---------------------|
| 1 Azygous scale single or absent   | <i>platyrhinos.</i> |
| More than one azygous  | 2                   |
| 2 Belly black with small yellow patches  | 3                   |
| Belly immaculate or mottled with gray-brown  | <i>simus.</i>       |
| 3 Generally less than 7 scales in azygous area   | <i>kennerlyi.</i>   |
| Generally more than 9 scales in azygous area   | 4                   |
| 4 Generally more than 35 blotches anterior to the vent in males; more than 40 in females | <i>nasicus.</i>     |
| Generally less than 32 dorsal blotches in males; less than 37 in females                 | <i>gloydi.</i>      |