



Foto 1: *Elaphe bairdi*, volwassen/adult, Texas, USA;  
foto K.-D. Schultz.



Foto 2: *Elaphe bairdi*, volwassen/adult, N. Mexico;  
foto L. Keller.

## THE SYSTEMATIC-TAXONOMIC POSITION OF *ELAPHE BAIRDI* (YARROW, 1880)

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### GENERAL

'Bairds ratsnake', as it is called in the U.S.A., was up to a few years ago, a rarity in private collections, public collections or zoological gardens. This has changed little by little, so that this species now is kept successfully by a large number of private snake keepers and is also bred regularly. Unfortunately the general knowledge about this snake is relatively low within the snake keepers community and poorly documented in literature.

Opinions differ about the systematic-taxonomic status of this species. Some authors consider it as a valid subspecies of *Elaphe obsoleta* (Dowling, 1951), others, however, as an independent species (Wright & Wright, 1957). Again, other authors are of the opinion that an exact taxonomic definition of this snake is for the present not possible.

Olson (1977) and the more recent works of Parmley (1986) and Lawson & Lieb (1990) however show a very high measure of agreement about the validity of the species, so that there is no essential problem anymore concerning the classification of *Elaphe bairdi*. Olson (l.c.) compared the populations of *Elaphe bairdi* and *Elaphe obsoleta* in isolated areas and came to the conclusion that they are different species. Parmley (l.c.) directed his research mainly to characters in the skeleton and researched especially the vertebrae. His research pointed to a clear difference within the subspecies of *Elaphe obsoleta*.

Lawson & Lieb (l.c.) examined the data of the distribution areas. They also researched the external (morphological) and internal (genetic) variation patterns, comparing *Elaphe bairdi* to the forms of *Elaphe obsoleta*. It became obvious that there is only a geographical-ecological, very limited area, in central Texas, where a hybrid of both forms appears. In this overlapping area forms are morphological clearly distinguished. Yet a more accurate analysis of all morphological and genetic data shows that *Elaphe bairdi* differentiates itself more and more from an archetype that it shares with *Elaphe obsoleta*. In the course of the evolution however secondary reconvergence within the geographical distribution lead to the origination of the above mentioned joint zone.

### OWN ANALYSES

Colour and markings.

In our opinion *Elaphe bairdi* is clearly deviating from the 'Obsoleta-complex', with regard to colour and markings.

On adult *Elaphe bairdi*, only the four thin, longitudinal dark lines are reminiscent of the southeastern populations of *Elaphe obsoleta*. On some specimens of *Elaphe bairdi* no markings at all are recognizable. The complex structure of the colour - particularly with respect to the northern populations of *Elaphe bairdi* - which consists of silverygrey and orangebrown to pink-violet tints, does not appear on any other American species of the genus *Elaphe*.

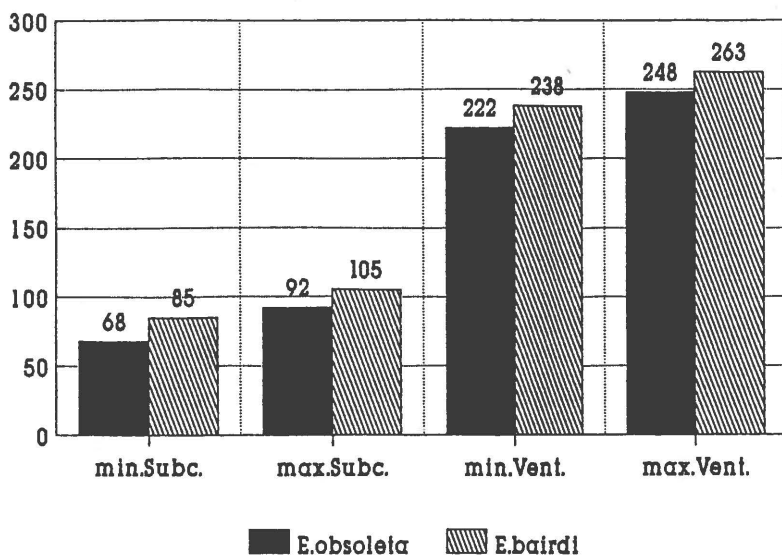
### Juvenile markings

Especially distinctive is the juvenile phase of *Elaphe bairdi*. To start, young animals are more robustly built than is the case in *Elaphe obsoleta*. True, the markings look vaguely similar to those of *Elaphe obsoleta*, but show deviations from *Elaphe obsoleta* in the structure: the markings are more vague and the saddles are mostly smaller and thinner than those of *Elaphe obsoleta*, but they are more numerous. The hatchling markings within the subspecies of *Elaphe obsoleta* vary little from subspecies to subspecies and these exhibit no variations which approximate to the characters of *Elaphe bairdi*.

### Geographical variations

Some Mexican populations of *Elaphe bairdi* distinguish themselves by the yellowish brown colour of the body, as well as by the slate-grey colour of the head, from other colour morphs found elsewhere. The juvenile specimens of the Mexican *Elaphe bairdi* are hardly distinguishable from those of the normal varieties (photo 3). Only when they get older, at about one year (with a total length of about 70 cm), one can recognise clear differences in the colour and markings. Because at this size the markings of the Mexican form are already almost absent or very indistinct, whilst the normal phase of *Elaphe bairdi* at the same size still presents the typical juvenile markings.

A direct comparison between this practically unknown variation of *Elaphe bairdi* with *Elaphe obsoleta* reveals hardly any resemblances in our opinion.



**Table 1:** Difference in scapulation between *Elaphe obsoleta* and *Elaphe bairdi*.

min. Subc. = minimal number of subcaudals; max. Subc. = maximum number of subcaudals;  
 min. Ventr. = minimal number of ventrals; max. Ventr. = maximum number of ventrals.

### Morphology

Further morphological differences are present, as far as we know, for example in reference to the build of the head. *Elaphe bairdi* has a more narrow and tapering head than *Elaphe obsoleta*.

In some scalation characters there are also striking differences to be seen (see table): in *Elaphe obsoleta* the dorsal scales on the back are mostly clearly keeled. In *Elaphe bairdi* however the dorsal scales on the first part of the body are essentially weakly keeled, which on the whole gives it a somewhat glossy appearance.

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Foto 3: *Elaphe bairdi*, juven., N. Mexico;  
foto K.-D. Schultz.



Foto 4: *Elaphe bairdi*, 1 jaar oud, 1 year old, Texas, USA;  
foto K.-D. Schultz.



Foto 5: *Elaphe bairdi*, 1 jaar oud, 1 year old, N. Mexico;  
foto K.-D. Schultz.

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