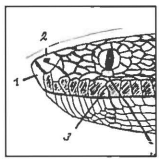
TAXONOMY AND DETERMINATION OF BOA CONSTRICTOR



José en Ben Lotte,
Iman van den Boschpad 22, 3192 BG
Hoogvliet-Rotterdam, The Netherlands

■ THE CONCEPT OF "SPECIES"

Mayr (1942) gives the following definition for the concept of species: "A species is a group of interbreeding, natural populations which are separated reproductively from other similar groups".

The emphasis in this definition is on the question whether fertile offspring can be bred under natural circumstances, meaning if there is a free exchange of genes between members of the populations in their natural environment. Nowadays, the emphasis is put on the latter part of Mayr's definition, namely the phrase: ".... which are separated reproductively from other similar groups".

At the moment, when determining if a group of populations can be considered a species, it is not considered to be essential that these populations can interbreed, but it is considered to be much more important that they are not able to interbreed with other populations. This new biological definition of species thus assumes that a species is a reproductive community, whereby individuals recognise each other as potential breeding partners and come together with the purpose of reproduction.

■ THE CONCEPT OF "SUBSPECIES"

The definition is: a subspecies is a collection of populations of a species of similar appearance which live in a geographical part of the distribution area of the species, and which differ taxonomically from other populations of that species (Mayr, 1960).

The first part of the definition is clear enough, but what is meant exactly by: "differ taxonomically from" ? Each local population is a little different from another local population. These differences can be determined by exact counting of scales and measuring, and statistical analyses. Of course, it would be ridiculous and it would lead to chaos if each of these populations would formally be given the status of "subspecies". Therefore, subspecies are only being recognised if they differ taxonomically. To differ taxonomically is to differ enough in substantially recognisable and morphological characteristics, for instance a difference in the number of scales. Colour, pattern and size are not taken into account in these characteristics.

■ RECOGNISING SPECIES AND SUBSPECIES BY THEIR SCALATION

Characteristics to determine a species are among others: skeleton, chromosomes, scalation, pattern, hemipenis, and the eyes and pores in the scalation. Sometimes the patterns of two different species look

very similar, or the pattern of a species can vary substantially. Therefore, this is not the most suitable way to differentiate between different species. One of the best ways to identify snakes is to study the pattern of scalation.

The dorsal scales (dorsals) may be smooth (Figure 1) or keeled which means they have a longitudinal thickening (or ridge) running along the centre (figure 2).

Figure 1: Smooth dorsal scales.

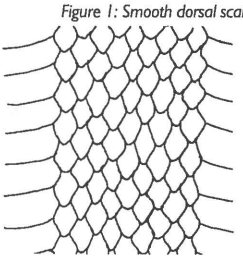
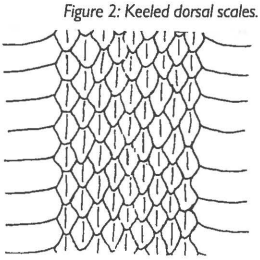


Figure 2: Keeled dorsal scales.



The difference between scales and plates is:

- a plate is surrounded by other plates on all sides
- a scale covers the front of the other scale with its back

Plates can be compared to bricks in a brick-laid wall which lie next to one another while scales can be compared to shingles on a roof which always partially cover each other.

DORSAL SCALES

The number of dorsal scale rows is counted as shown in Figure 3 and should be counted in three different places, namely:

1. approximately one head-length behind the head
2. at the middle of the body
3. about one head-length before the cloaca

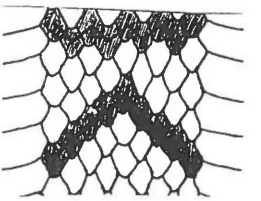
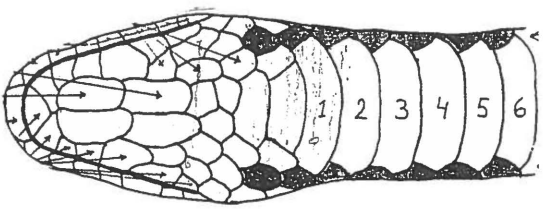


Figure 3: Method for counting the rows of dorsal scales.

This way one obtains three numbers, e.g. 19-17-15. In many publications only one number is given. Generally this is the number of rows of dorsal scales on the middle of the body.

Figure 4: Ventral scales



VENTRAL SCALES

The scales on the underside of the body are called the ventral scales (or ventrals) and are categorised as shown in Figure 4.

It is important to count the number of ventral scales. The first ventral scale is the first scale which is bordered on both sides by the undermost row of dorsal scales. The last ventral scale lies directly in front the anal scale (cloaca).

SUBCAUDAL SCALES

The subcaudals are the scales below the cloaca. They can be divided or paired. It should be noted that a divided anal scale can be followed by either divided or undivided subcaudals. The same goes for an undivided anal scale.

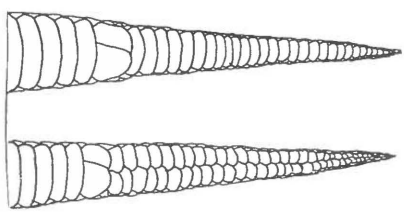
Roze (1966) mentions the following number of subcaudals to differentiate between the sexes of *Boa constrictor*:

Males: 56-58

Females: 43-45

The width of the scales on the underside of the body can vary strongly with each species. In most snakes the ventral scales have the width of those in Figure 5. In most Boas however, the scales are only a third or half the width of the scales.

Figure 5: Subcaudal scales

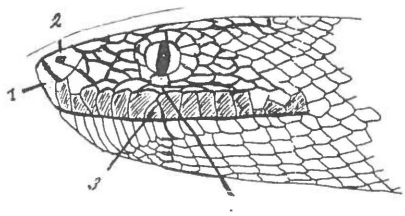


HEAD SCALATION

The scales on the head are also important for the determination.

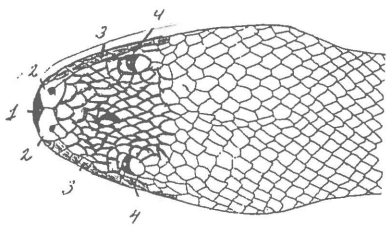
The naming of head scales and plates is shown with the help of some drawings.

Figure 6: Lateral view.



1. Rostral = *scale of the nose*
2. Nasals = *scales of the nostrils*
3. Upper labials = *scales of the upper lip*
4. Suboculars = *scales underneath the eye*

Figure 7: Dorsal view.



1. Rostral = *scale of the nose (gate for the tongue)*
2. Nasals = *scales of the nostrils*
3. Upper labials = *scales of the upper lip*
4. Suboculars = *scales underneath the eye*

TABLES OF DETERMINATION

Name	Dorsals	Ventrals	Subcaudals	Supralabials
01. *B.c. amarali*	71-79	226-237	43-52	20-24
02. *B.c. constrictor*	81-95	231-250	43-62	21-25
03. *B.c. imperator*	55-79	225-253	47-69	18-22
04. *B.c. longicauda*	50-58	223-247	60-67	....-....
05. *B.c. melanogaster*	86-95	237-252	45-54	....-....
06. *B.c. nebulosa*	59-69	258-273	.....-.....	19-21
07. *B.c. occidentalis*	64-87	242-251	45	21-22
08. *B.c. orophias*	65-75	270-288	55-69	.....-....
09. *B.c. ortonii*	57-72	246-252	46-59	19
10. *B.c. sabogae*	65-67	241-247	49-70	....-....
11. *B.c. sigma*	77	253-260	55-66	....-....

Name	Dorsal spots	Spots on flanks	Anal scales
01. *B.c. amarali*	≤ 22	15-20	01
02. *B.c. constrictor*	14-22	16-20	02-03
03. *B.c. imperator*	22-30	14-20	01-02
04. *B.c. longicauda*	....-....	....-....	....-....
05. *B.c. melanogaster*	20-21	....-....	....-....
06. *B.c. nebulosa*	31-35	....-....	.....-.....
07. *B.c. occidentalis*	≤ 22	16-20	02-03
08. *B.c. orophias*	25-31	14-19	01-02
09. *B.c. ortonii*	....-....	19	01
10. *B.c. sabogae*	....-....	....-....	....-....
11. *B.c. sigma*	≥ 30	....-....	....-....