



ELSEVIER

Zool. Garten N.F. xxx (2017) xxx–xxx

[www.elsevier.com/locate/zooga](http://www.elsevier.com/locate/zooga)**DER  
ZOOLOGISCHE  
GARTEN**

## Review of Crocodiles in Zoological Gardens with a focus on Europe

### Eine Übersicht über in Zoologischen Gärten gehaltene Krokodile, mit einem Schwerpunkt auf Europa

Thomas Ziegler<sup>a,\*</sup>, Anna Rauhaus<sup>a</sup>, Fabian Schmidt<sup>b</sup><sup>a</sup> AG Zoologischer Garten Köln, Riehler Str. 173, D-50735 Köln, Germany<sup>b</sup> Zoo Leipzig GmbH, Pfaffendorfer Straße 29, D-04105 Leipzig, Germany

Received 5 November 2016

### Abstract

To gain an overview of crocodile species held in zoos, the number of individuals kept, and the number of keeping institutions, we analyzed collection information from the Zoological Information Management System (ZIMS) database. Our analysis performed from June to July 2016 revealed that there were 24 species of crocodiles kept globally in 451 zoos, with 22 species kept in 185 European zoos. Two globally-kept species were lacking in European zoo holdings according to ZIMS. Of the 27 currently recognized species of crocodiles, one (*Mecistops* sp.) is not held in zoos at present. In addition we have opposed ZIMS data with information available from European studbooks and, based on literature evaluation, analyzed the development of crocodile collections in Europe during the last 40 years. Although ZIMS data is not complete, there is a trend discernible that only a few species are widely kept by the zoo community, whereas most species are represented in smaller numbers. We further discuss the importance of “Regional Collection Plans”, viz. long-term crocodile collection planning, and provide recommendations for population management such as considering a shift from very commonly kept species towards species that are in greater need of conservation support through zoo husbandry efforts.

**Keywords:** Crocodylidae; Zoos; *Ex situ* populations; Husbandry; Conservation breeding; ZIMS analysis

---

\*Corresponding author.

E-mail address: [ziegler@koelnerzoo.de](mailto:ziegler@koelnerzoo.de) (T. Ziegler).

## Introduction

Recently, Ziegler, Rauhaus, and Gill (2016) published a preliminary review of monitor lizards in zoological gardens, yielding useful results for future conservation breeding measures and improved zoo collection planning, respectively. As crocodiles are the reptiles in zoo holdings with the highest demands for required space, and comprise a considerable number of threatened taxa, we herein intended to provide an equivalent overview of crocodile species held in zoos, the number of individuals kept, and the number of keeping institutions, to uncover the relationship between commonness in zoological gardens, protection status, and necessity of (conservation) breeding. To obtain a global overview, we have compiled collection information from the Zoological Information Management System (ZIMS) database, an international record keeping database for zoological institutions. In addition we have opposed ZIMS data with information from European studbooks and analyzed the development of crocodile collections in Europe during the last 40 years based on data available from Honegger (1975), and Honegger and Zeigler (1991). We further discuss the importance of Regional Collection Plans, viz. long-term collection planning, and provide recommendations for crocodile population management.

## Methods

For this study we have analyzed: (1) the species of crocodiles held in zoos, (2) their individual numbers, and (3) the number of keeping institutions based on available data on living individuals from ZIMS. Many zoos subscribe to, and enter their collection data into ZIMS; however, the completeness of these data cannot be guaranteed, as some data may be obsolete or have not (yet) been entered, and some zoos do not participate in ZIMS. Thus, some data, also from institutions with comprehensive crocodile collections (e.g., Guangzhou Crocodile Zoo, Samutprakran Crocodile Farm) could not be included in this study, which is the reason that actual counts may be higher. This is also indicated, for example, by checking species holdings for further institutions in Germany and Europe using the website “Zootierliste” (<http://www.zootierliste.de/>). Here, further holding institutions can be found (see Fig. 1), but this website also includes private zoos and rescue stations. As far as available we also cross-checked numbers received from ZIMS with the individuals registered in the European studbooks. However, as there are only data available from four studbooks, ZIMS data were the only base for a comprehensive comparison between all species in a world wide scale. Our ZIMS analysis examined the current status of crocodiles maintained in zoos both in Europe and abroad, and was performed from June to July 2016. The updated number of *Crocodylus palustris* held at Madras Crocodile Bank Trust were not taken from ZIMS but received directly from the Madras Crocodile Bank Trust. Species from polytypic genera, which were not specifically identified in ZIMS, were not considered in this analysis: *Alligator* sp. (13 individuals: 0.0.13), *Caiman* sp. (10 individuals: 0.3.7), and *Crocodylus* sp. (20 individuals: 1.0.19). We also have analyzed the development of crocodile collections in Europe during the last 40 years based on data available from Honegger (1975), and Honegger and Zeigler (1991), who conducted surveys by sending questionnaires to the largest zoos.

Download English Version:

<https://daneshyari.com/en/article/5546090>

Download Persian Version:

<https://daneshyari.com/article/5546090>

[Daneshyari.com](https://daneshyari.com)