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BRIEF REPORT

The Global Reach of Zoos and Aquariums in Visitor Numbers and Conservation Expenditures

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A survey conducted by the World Association of Zoos and Aquariums, in collaboration with national and regional zoo and aquarium associations, showed that annually more than 700 million people visit zoos and aquariums worldwide and are thus potentially exposed to environmental education. Furthermore, the world zoo and aquarium community reportedly spends about US\$350 million on wildlife conservation each year. Therefore, the world zoo and aquarium community has the potential to play an important role in both environmental education and wildlife conservation. Systematic reviews are encouraged to provide further evidence for the effectiveness of zoos and aquariums as centers of education and conservation. Zoo Biol 30:566–569, 2011. © 2010 Wiley Periodicals, Inc.

Keywords: aquarium; conservation; education; funding; visitor; WAZA; zoo

INTRODUCTION

Modern zoos and aquariums increasingly see themselves as centers of education and conservation [Miller et al., 2004], as stipulated in the revised World Zoo and Aquarium Conservation Strategy [WAZA, 2005]. There is in fact a dual mission of many zoos and aquariums to be leaders in both education and conservation [Patrick et al., 2007]. As for example with the Congo Gorilla Forest exhibit at Bronx Zoo or the Masoala Rainforest exhibit at Zurich Zoo, education

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and conservation increasingly complement and reinforce each other [Rabb and Saunders, 2005; Fraser and Wharton, 2007]; both are contingent upon people being exposed to and spending money on such initiatives.

However, as the last global survey was performed nearly 20 years ago [IUDZG/CBSG, 1993], there is no up-to-date estimate available of the number of people who are potentially exposed to environmental education, whether formal or informal, at zoos and aquariums. Davey [2007] showed that regional zoo and aquarium attendance may indeed vary over time. Furthermore, we entirely lack an estimate of the financial expenditures of the world zoo and aquarium community on wildlife conservation. We thus sought to obtain current figures on the global reach of zoos and aquariums in visitor numbers and conservation expenditures.

METHODS

We approached 12 national and regional zoo and aquarium associations, covering all regions of the world, to provide a figure regarding the following two questions: How many visitors did your member institutions receive in 2008? How much money was spent on wildlife conservation by your member institutions in 2008? (Wildlife conservation in this context encompasses in situ conservation of wild species and habitats, including related ex situ work). Although all 12 associations submitted figures on visitor numbers that they sought to obtain from their more than 1000 members, only seven associations submitted figures on conservation expenditures.

RESULTS AND DISCUSSION

About 600 million people reportedly visited zoos and aquariums worldwide in 2008. When comparing zoo and aquarium attendance between the last global survey in 1990 and 2008 (Table 1), those associations reporting higher numbers in the current survey represent regions with established documenting structures (North America, Australasia, and Europe), suggestive of a growing number of visits in these regions [cf. Davey, 2007]. Conversely, those associations reporting lower numbers in the current survey represent regions where obtaining comprehensive numbers is more challenging (Latin America, Africa, and Asia). Although the current survey was specifically aimed at collecting documented figures from the associations'

TABLE 1. Annual Number of Visits to Zoos and Aquariums Worldwide in 1990 [IUDZG/CBSG, 1993], 2008 (This Survey), and Adjusted (in Millions of People)

	1990	2008	Adjusted ^a
North America	106	186	186
Latin America	61	11	61
Africa	15	8	15
Australasia	6	17	17
Europe	125	142	142
Asia	308	221	308
Global total	621	585	729

^a1990 figures for Latin America, Africa, and Asia. 2008 figures for North America, Australasia, and Europe.

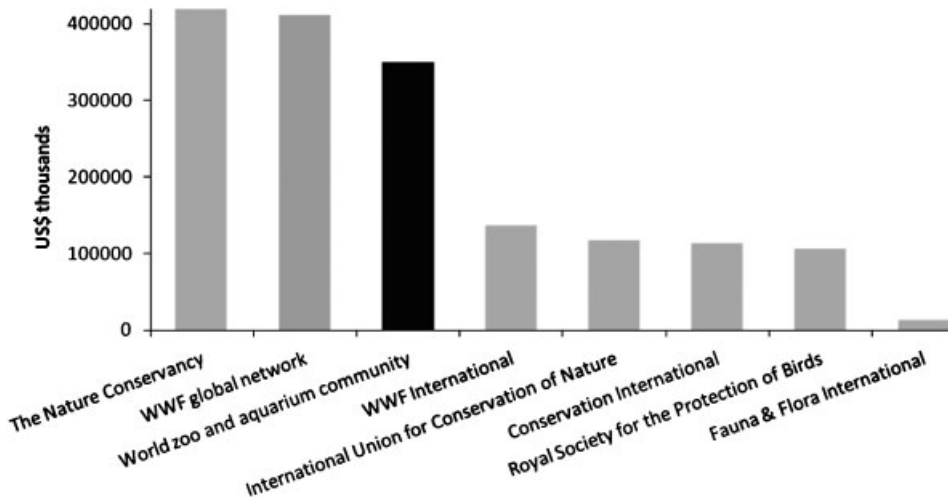


Fig. 1. Amount of money spent on wildlife conservation by major international conservation organizations (figures taken from annual reports) and the world zoo and aquarium community (this survey) in 2008 (in thousands of US\$).

members, which generally proved feasible for the former three regions, the previous survey [IUDZG/CBSG, 1993] relied on the associations' estimates of zoo and aquarium attendance. This may be more appropriate for the latter three regions, given the underestimates in documented figures confirmed by those associations in the current survey. Considering this variation in reporting between the two surveys and assuming a largely unchanged number of existing zoos and aquariums, it seems legitimate to adjust the results accordingly (Table 1), in which case zoos and aquariums worldwide receive more than 700 million visits annually. This figure, which may include multiple individual visits, is most certainly an underestimate [WAZA, 2009] and is unparalleled by any other group of conservation-oriented institutions.

The world zoo and aquarium community reportedly spent about US\$350 million on wildlife conservation in 2008. This amount includes the expenses of zoo-based conservation organizations, but given that only about half of the associations submitted figures on conservation expenditures (see above), it is most certainly an underestimate. Across regions, zoos and aquariums in North America and Europe spent the most by far on wildlife conservation (97% of expenses reported). In relation to major international conservation organizations (Fig. 1), the world zoo and aquarium community is among the main providers of conservation funding.

CONCLUSIONS

The large number of visitors received and amount of conservation money spent suggest that the world zoo and aquarium community has the potential to play an important role in both environmental education and wildlife conservation [for examples, see Zimmermann et al., 2007; Dick and Gusset, 2010]. However, it remains largely unclear how education initiatives affect visitor behavior [Ogden and Heimlich, 2009] and how financial expenditures influence conservation efforts

[Ferraro and Pattanayak, 2006]. Regarding the latter, Gusset and Dick [2010] showed that increasing support provided by zoos and aquariums, particularly financial, indeed leads to a significantly higher overall impact of a conservation project. Systematic reviews [Pullin and Stewart, 2006] are encouraged to provide further evidence for the effectiveness of zoos and aquariums as centers of education and conservation.

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