EAZA Deer TAG

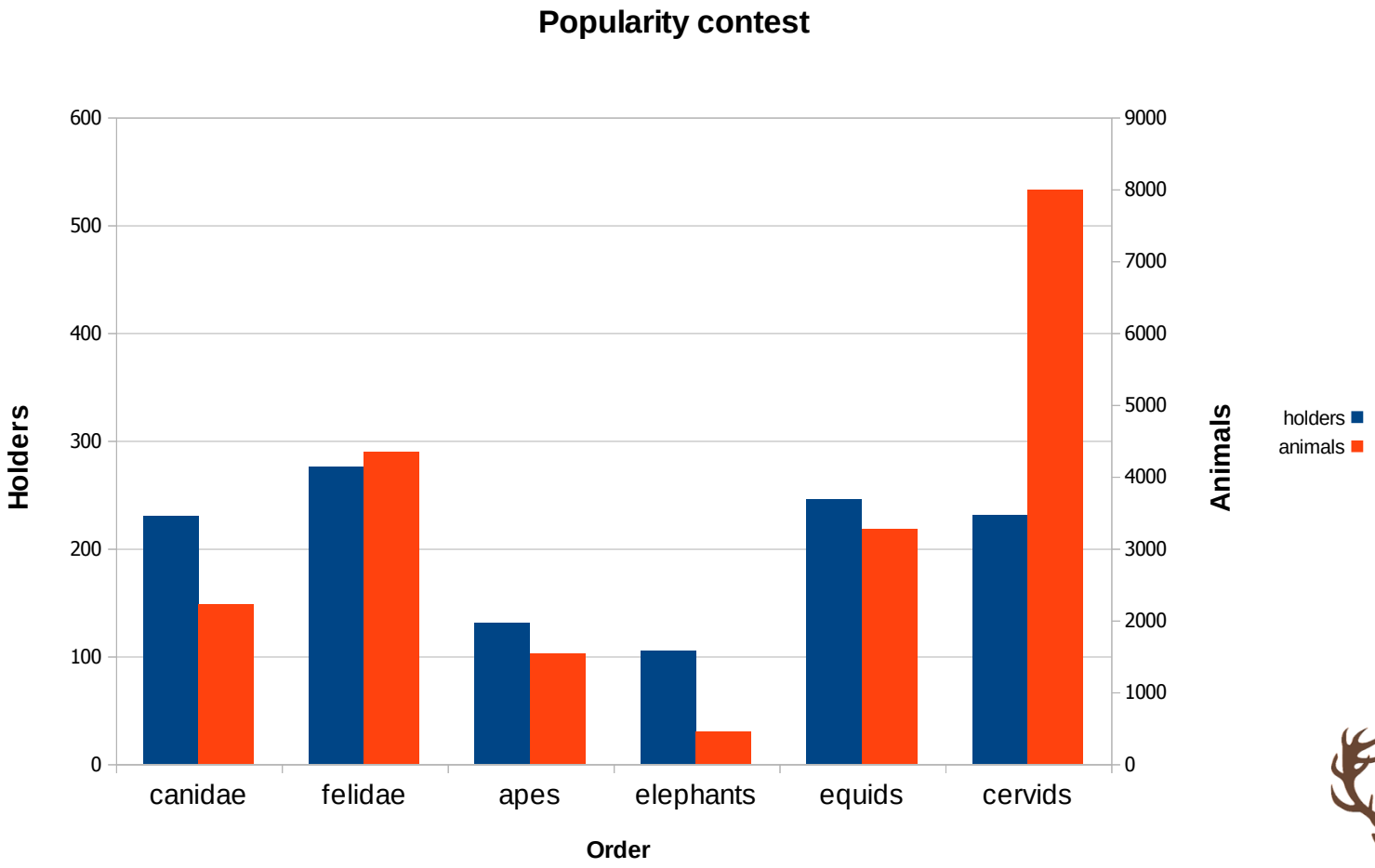
Long term trends

Current situation

Activities

Long term trends

Are deer popular?



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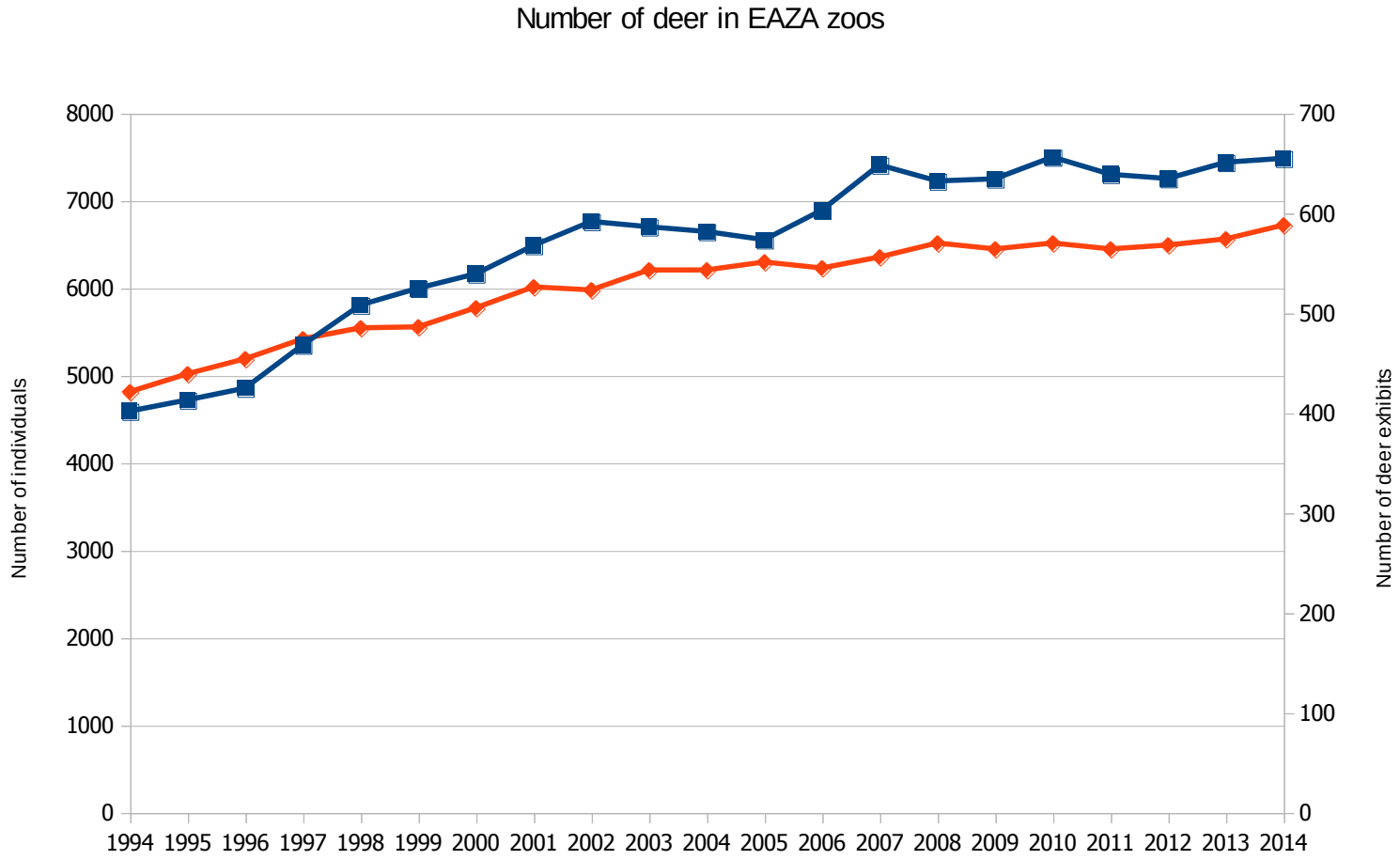

Problem - Number of EAZA and ARKS/ZIMS users also increased overtime...

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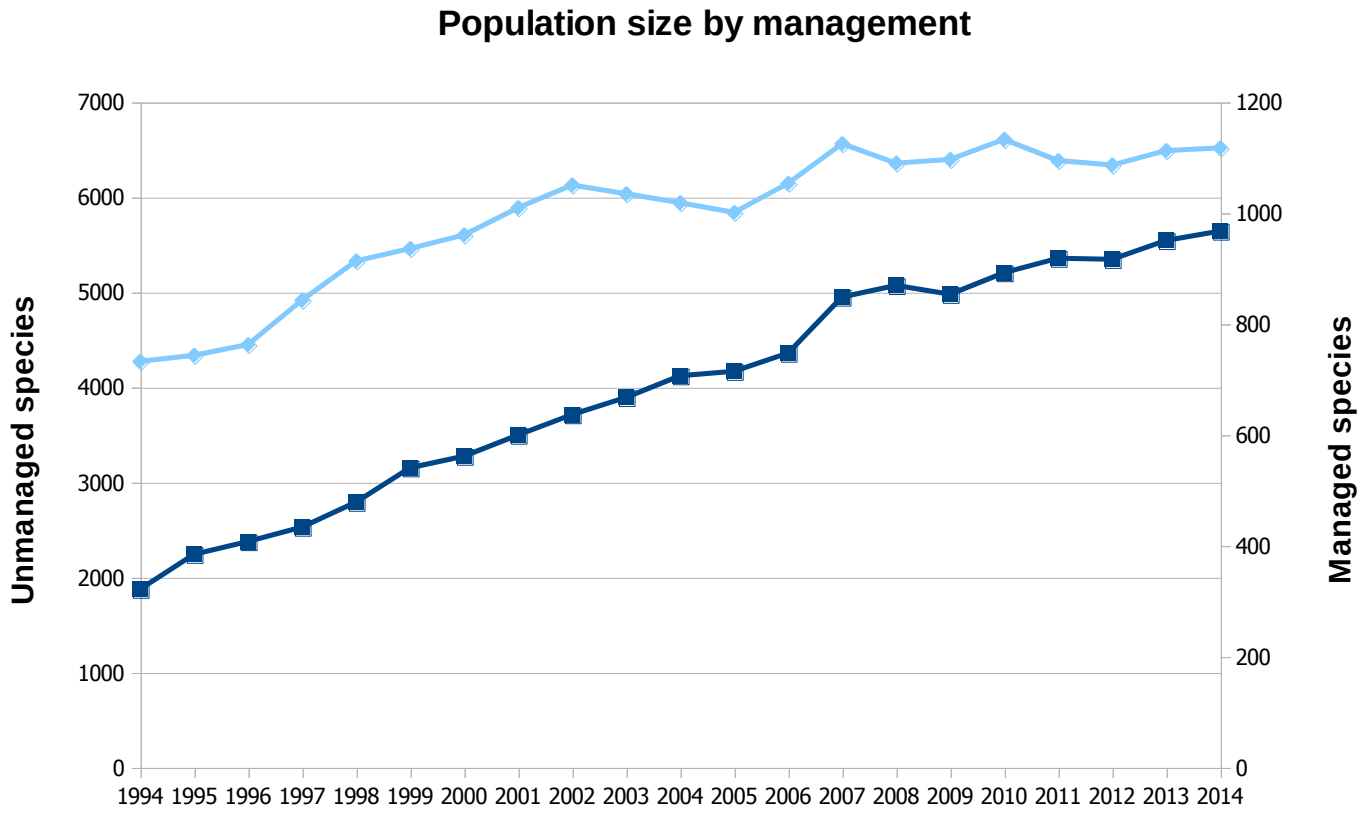
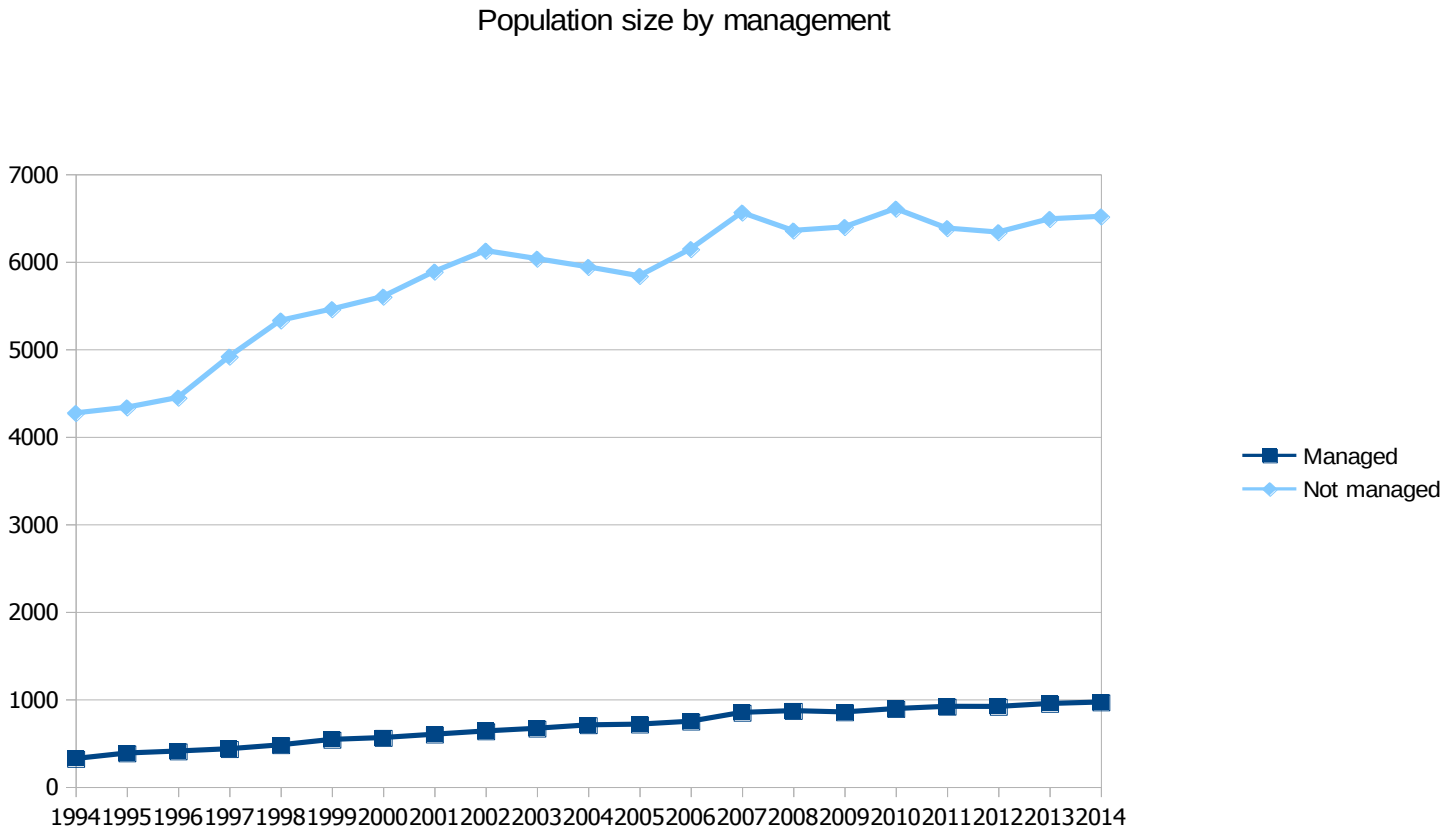
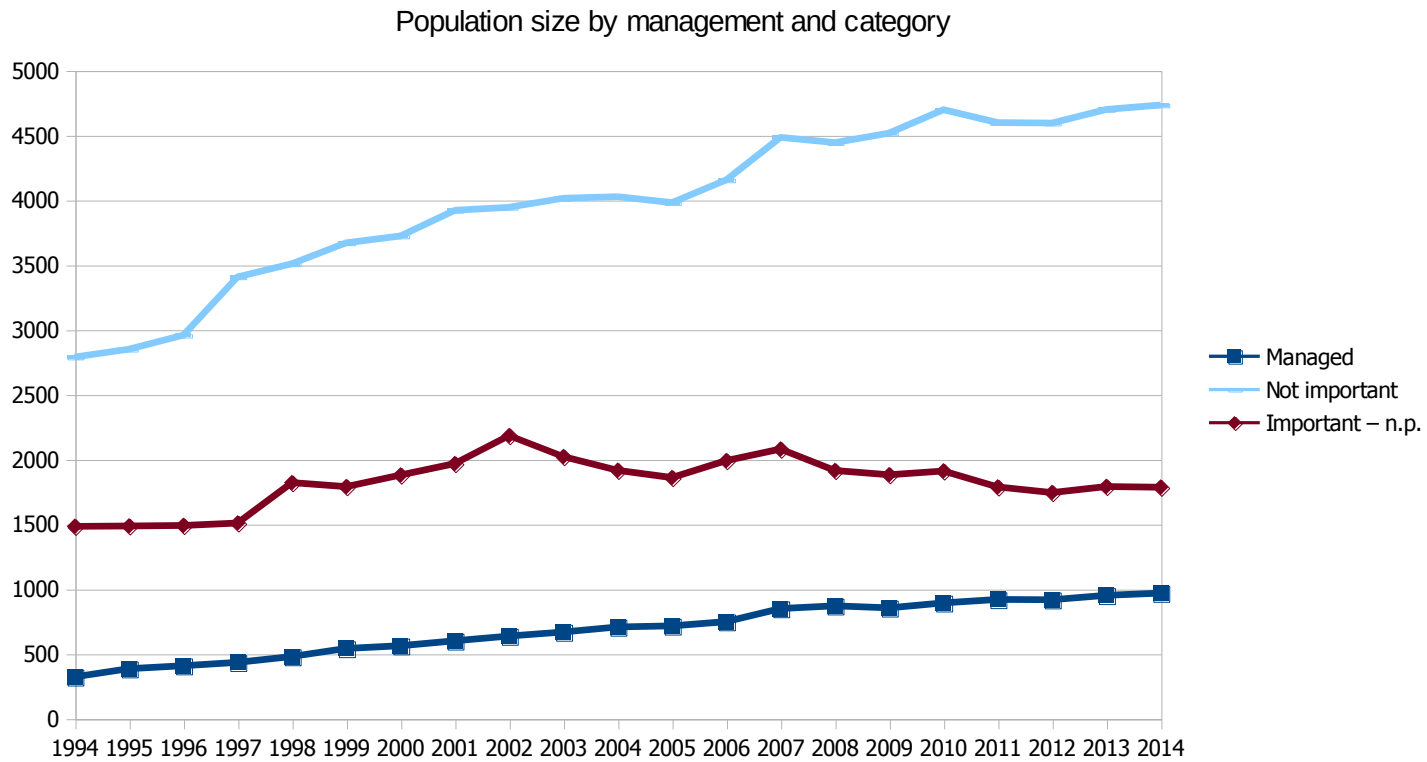


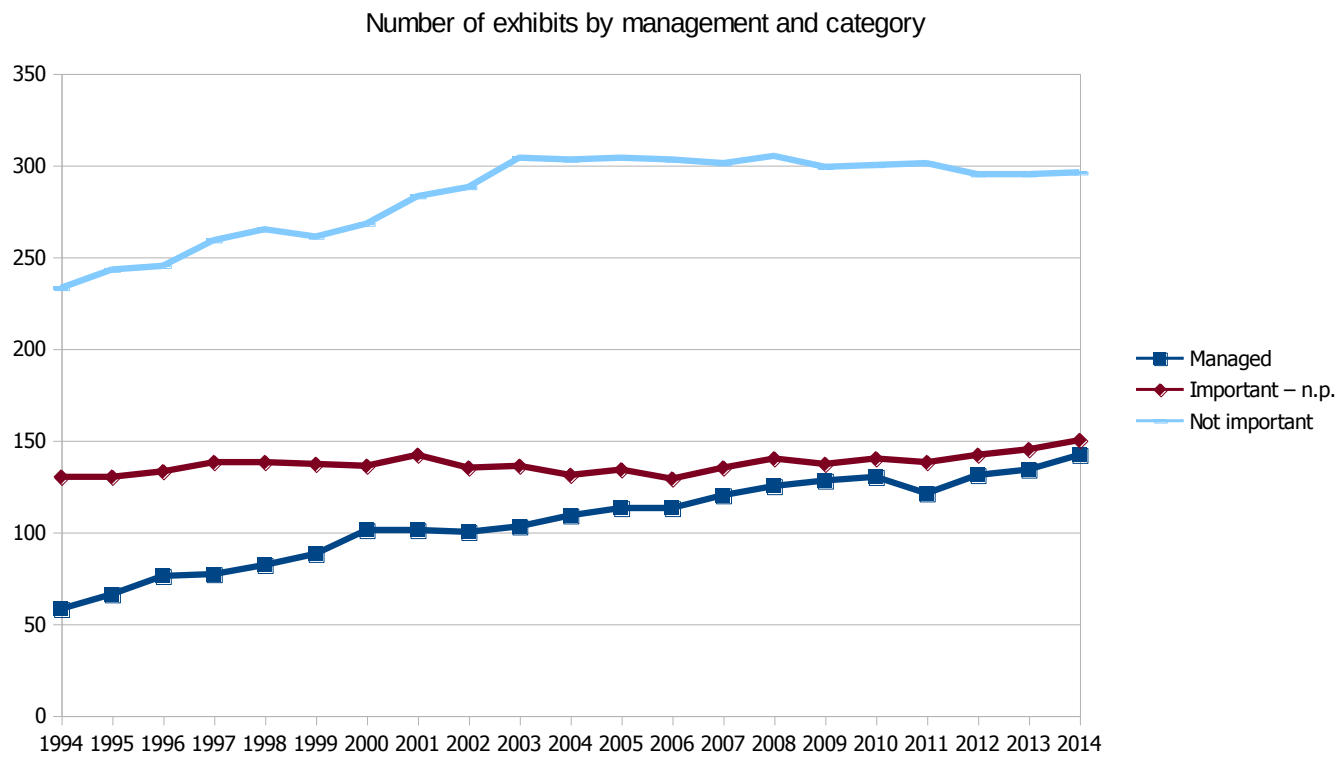
There is a constant increase in numbers of individuals of managed species, but stability in numbers of individuals of unmanaged ones in recent years



However, despite the difference in trends, the shear number of unmanaged species may limit the future growth in population of managed ones



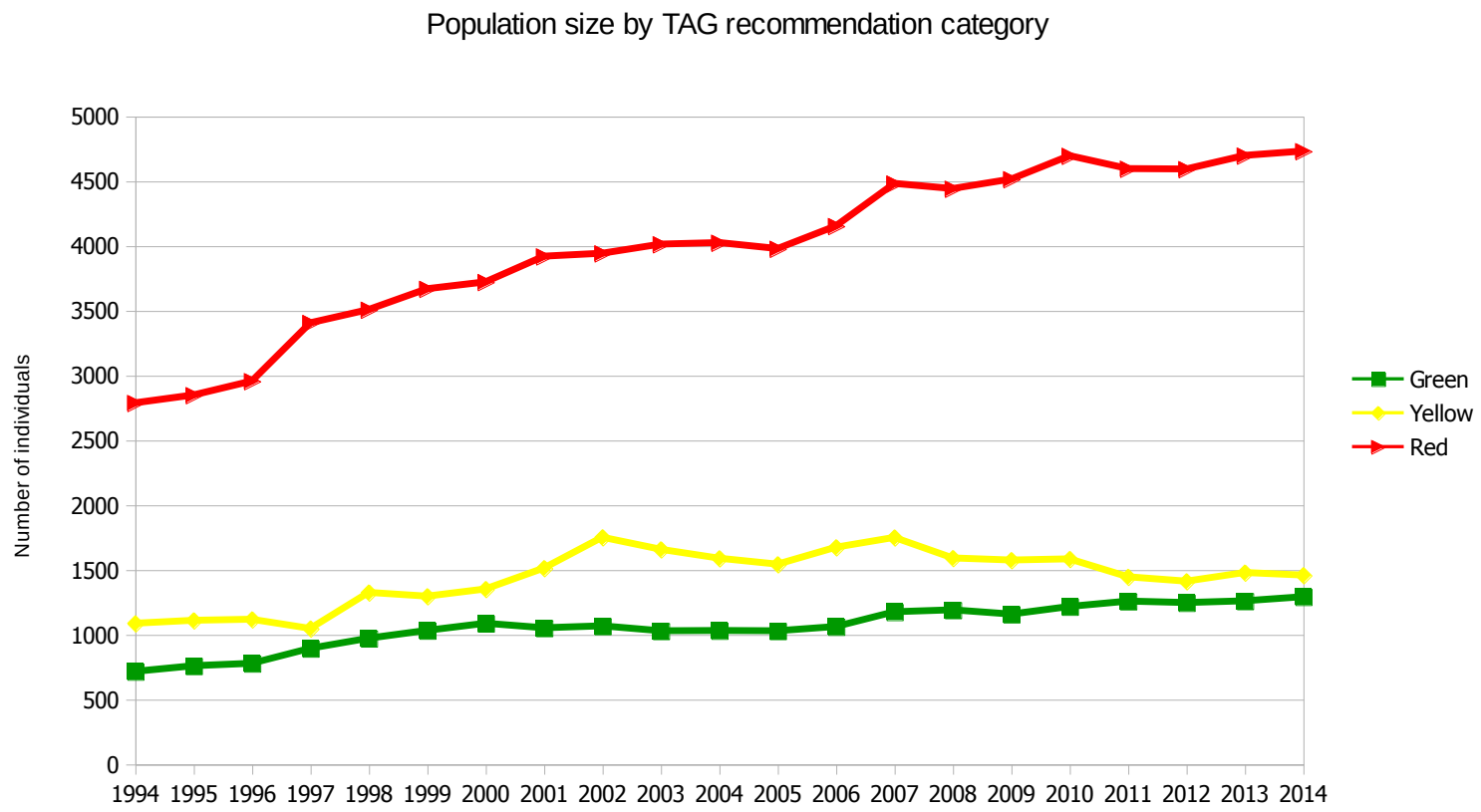
Furthermore, the trends hide a difference between unmanaged "common" species, whose populations continue to grow, and unmanaged important species, whose populations have been stable or decreasing.



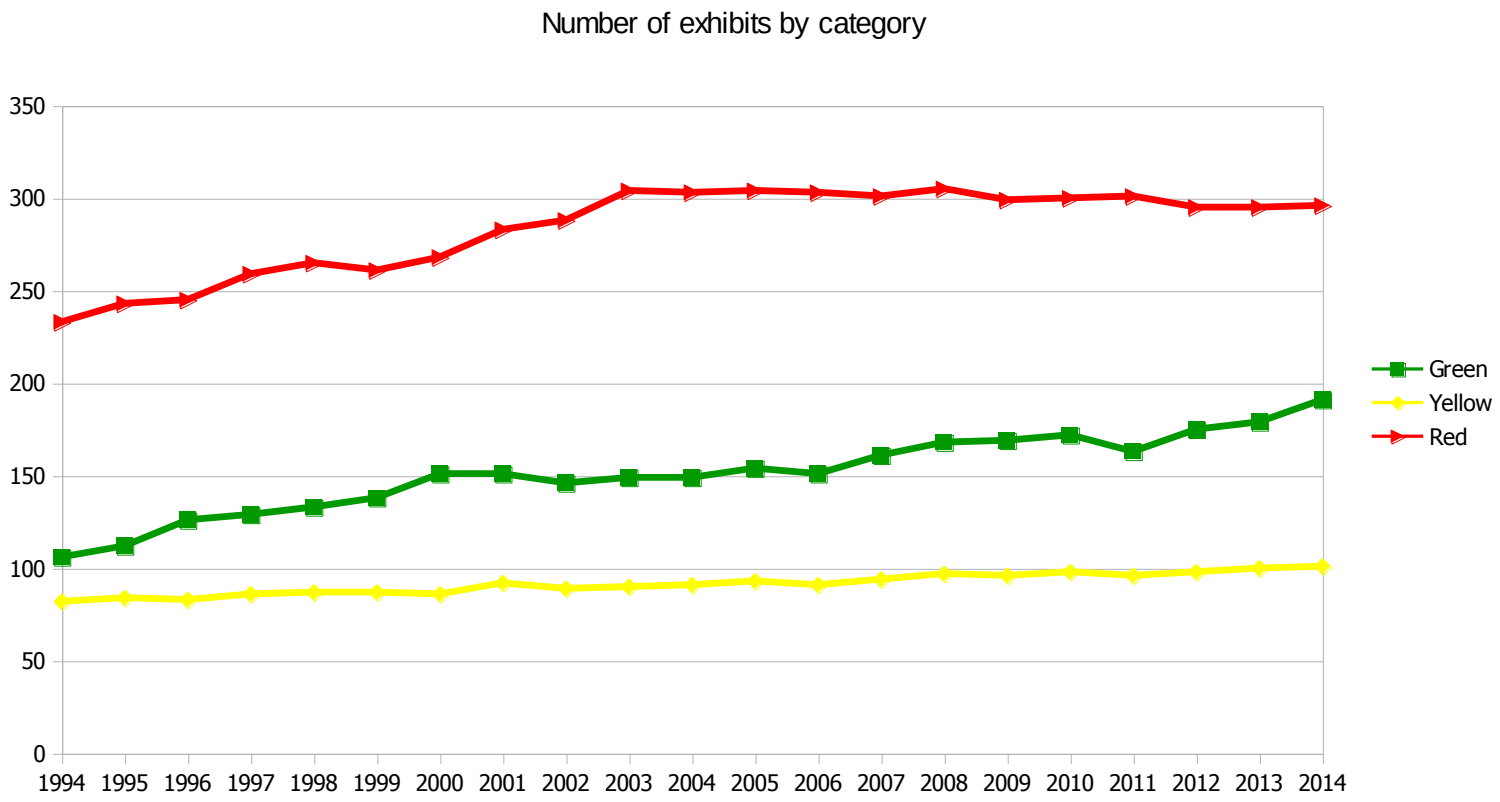
The population trends are to some degree reflected in the number of exhibits that are allocated to each category, although number of exhibits for "common" species is stable and not increasing.

High		Medium		Low	
Lesser chevrotain	*Tragulus kanchil*	Formosan sika deer	*Cervus nippon taiouanus*	Unk/common ssp sika deer	*Cervus nippon*
Balabac chevrotain	*Tragulus nigricans*	Mesopotamian fallow-deer	*Dama mesopotamica*	Unk/common ssp red deer	*Cervus elaphus*
Siberian musk-deer	*Moschus moschiferus*	Pere-David's deer	*Elaphururs davidianus*	North-American wapiti	*Cervus canadensis*
Bactrian deer	*Cervus elaphus bactrianus*	Eld's deer (unk ssp)	*Rucervus eldii*	Chinese muntjac	*Muntiacus reevesi*
Tufted deer	*Elaphodus cephalophus*	Indian muntjac	*Muntiacus muntjak*	Unk/common ssp Reindeer	*Rangifer tarandus*
Hog deer	*Axis porcinus*	Moose (European)	*Alces alces*	Axis deer	*Axis axis*
Bawean deer	*Axis kuhlii*	Woodland caribou	*Rangifer tarandus caribou*	Roe deer	*Capreolus capreolus*
Southern pudu	*Pudu puda*	Chinese water deer	*Hydropotes inermis*	Common fallow-deer	*Dama dama*
Forest reindeer	*Rangifer tarandus fennicus*			Moose (unk/American)	*Alces ?/A. americanus*
Eld's deer (known ssp)	*Rucervus eldii ssp.*				
Vietnamese sika deer	*Cervus nippon pseudaxis*				
Sambar	*Rusa unicolor*				
Timor deer	*Rusa timorensis*				
Visayan spotted deer	*Rusa alfredi*				
White-lipped deer	*Cervus albirostris*				
Siberian wapiti	*Cervus Canadensis sibiricus*				
Barasingha	*Rucervus duvaucelii*				

However, managed species do not include all the threatened species or otherwise important ones and, therefore, this table was formed to easily show which species are recommended for keeping (NOT necessarily for management) and which are not.



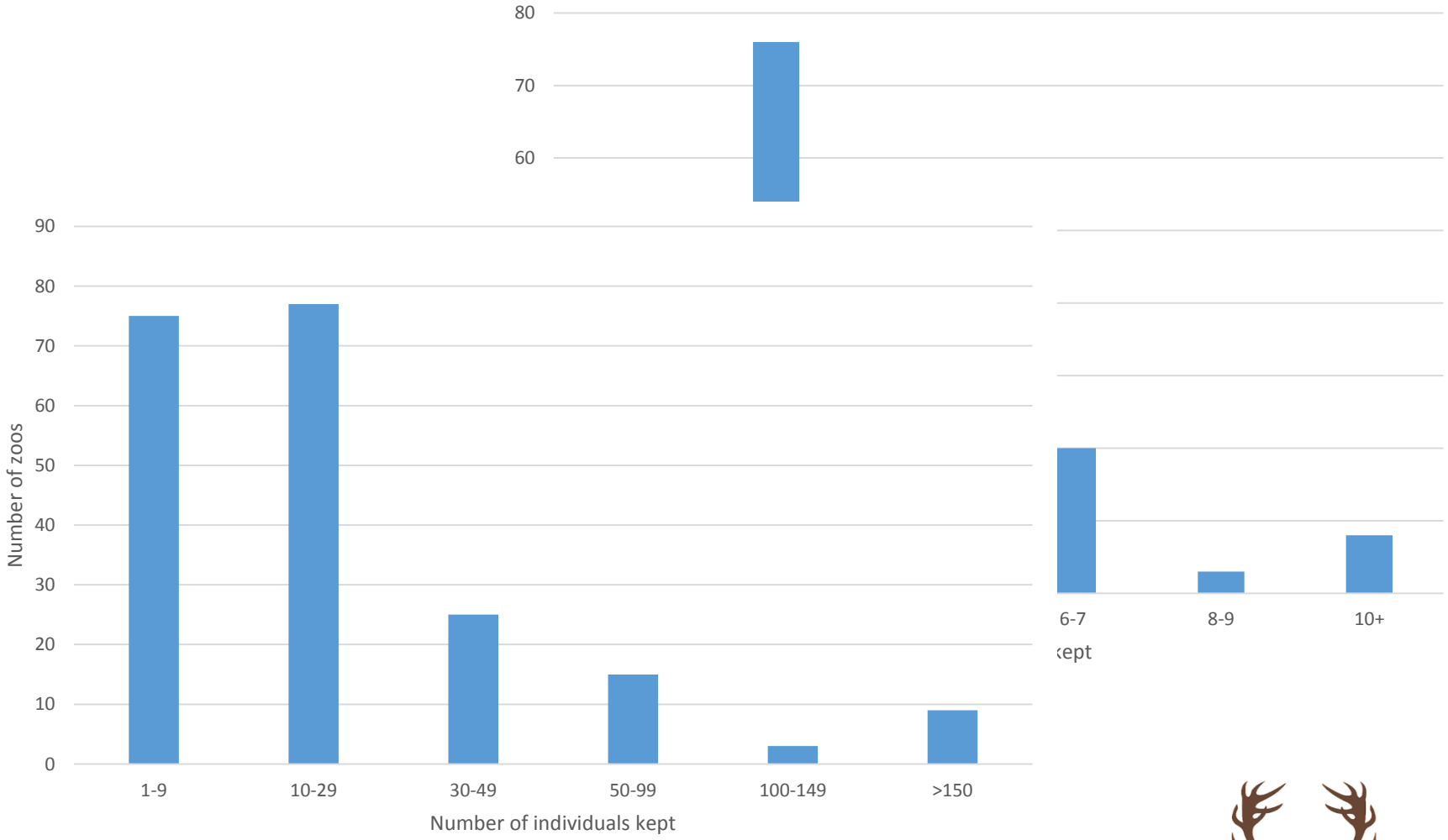
There is a similar trend, regardless of management – population of important and not important species grow, but these of medium importance (regardless of reason) are stable or decreasing.



And again similar trends when it comes to space – there is an increase in exhibits of important species, a slower one in those of species of medium importance and stability in the number of exhibits of unimportant species

Current situation

A total of 7,471 deer, musk-deer and chevrotains are kept by EAZA member zoos in 687 yard spaces, which are distributed among 204 EAZA member zoos (“yard spaces” include different exhibit at the same zoo and several species living together in mixed exhibits).



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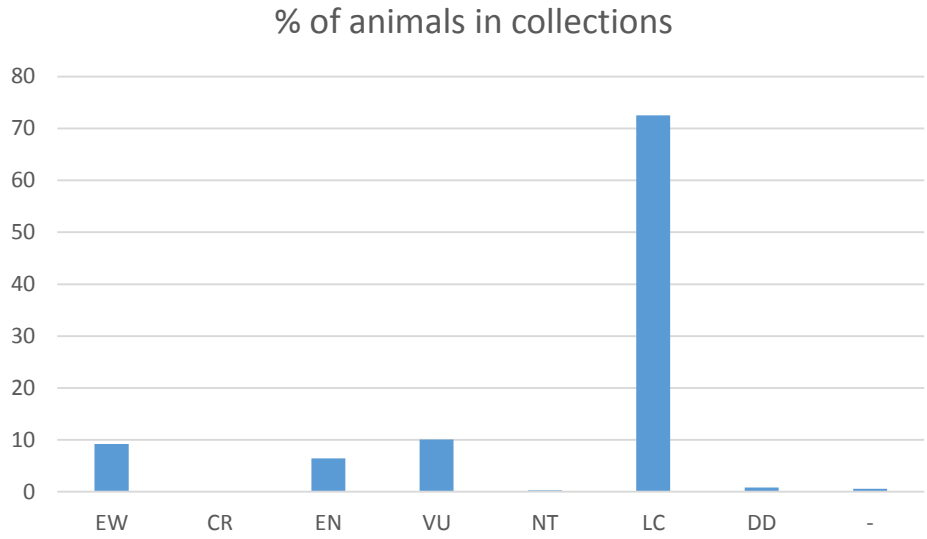
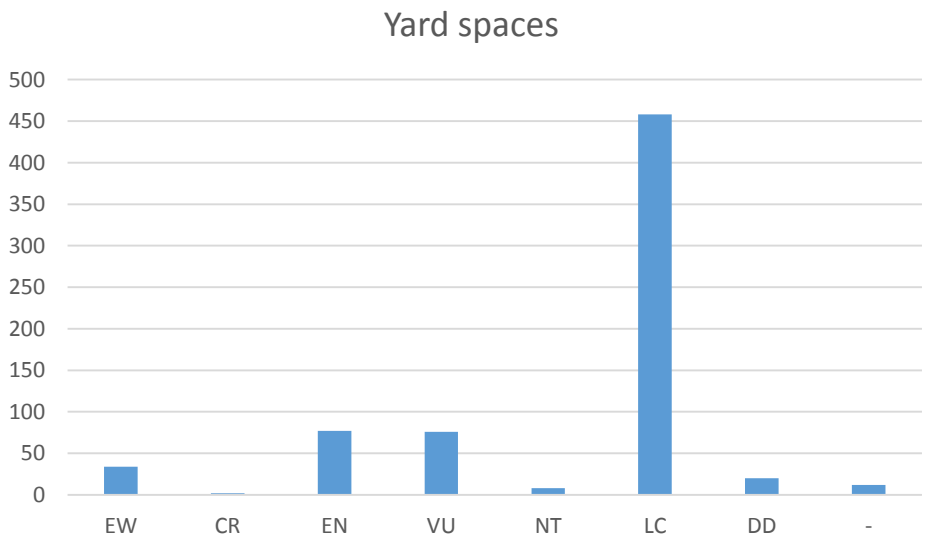
IUCN categories do not reflect reliably the contribution to conservation of keeping deer taxa, since these are not assessed to subspecies level (e.g. *Cervus nippon* – LC, but *C. n. pseudaxis* - EW





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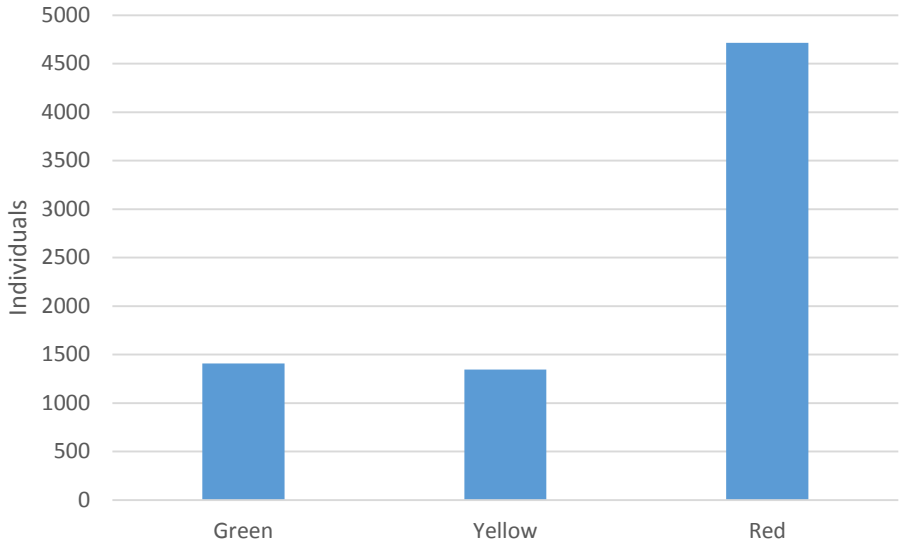

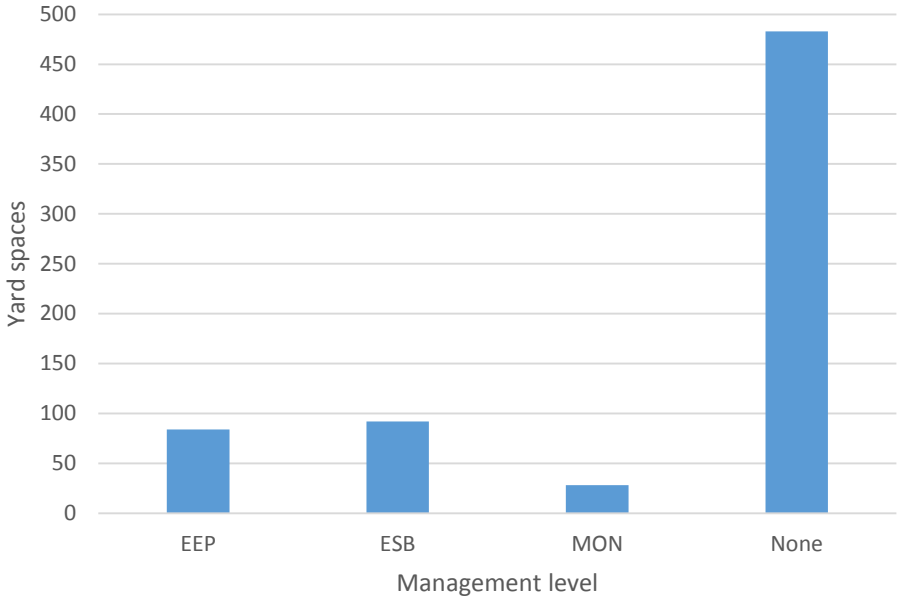

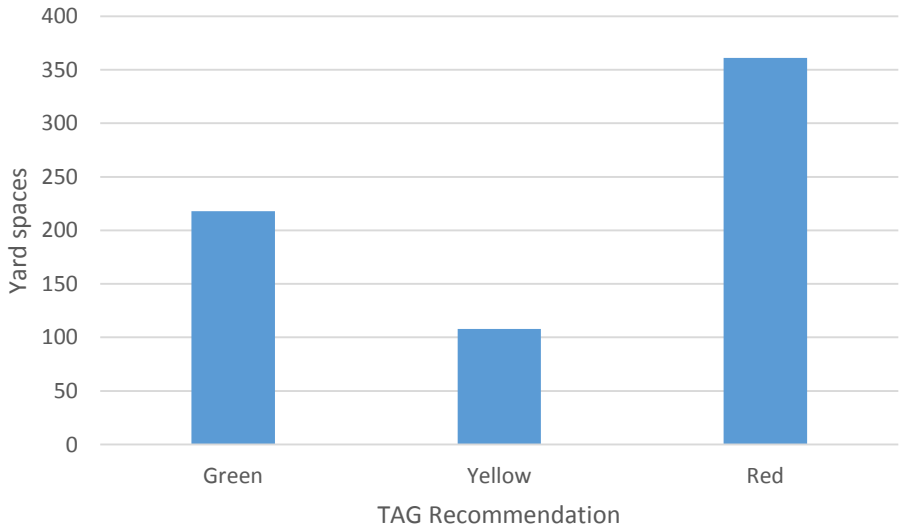

Population management levels and TAG recommendations better reflect the contribution to conservation (incl. education and research) of keeping deer.

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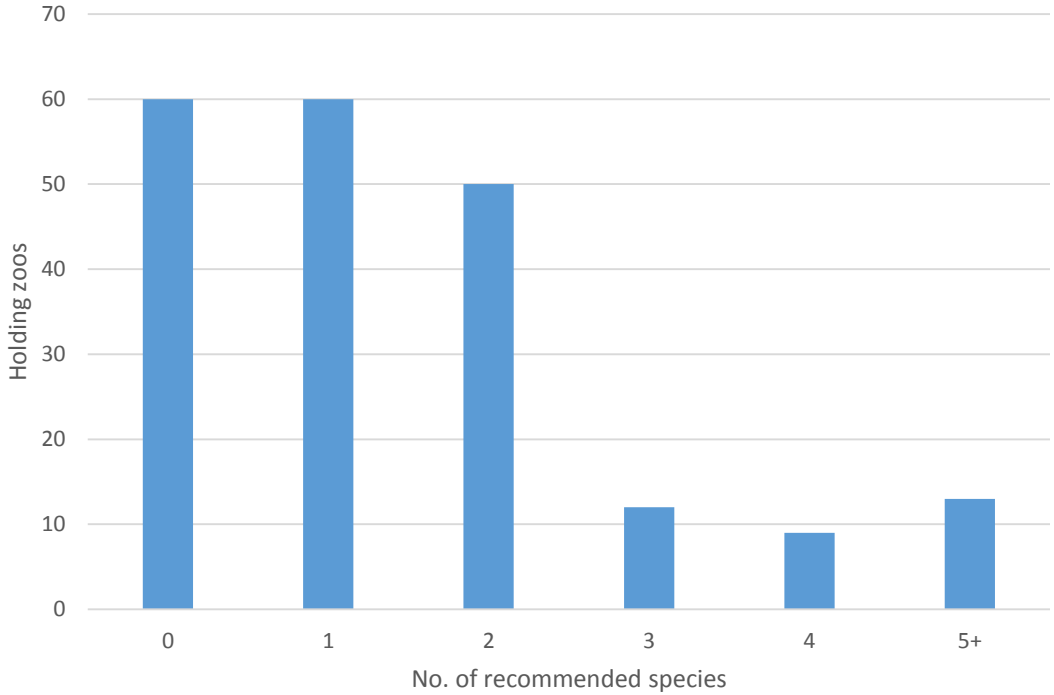
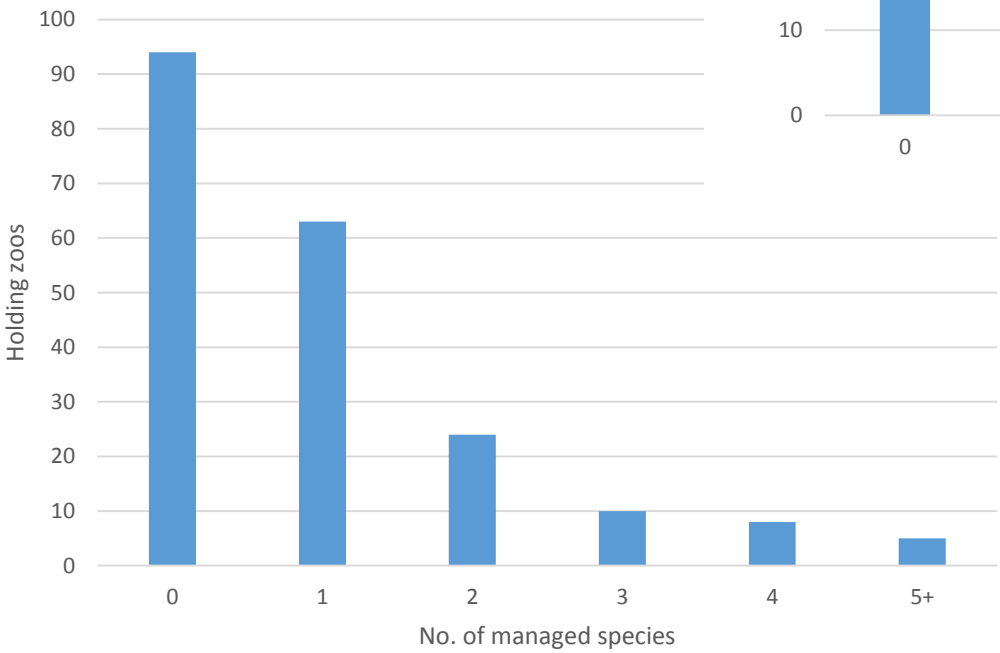
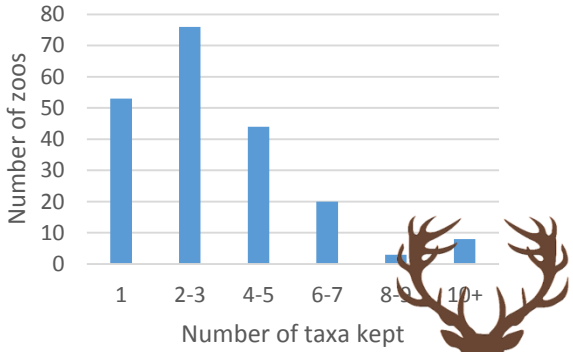
But still too many yard spaces are allocated for non-managed or non-recommended species and too many animals of these species are kept by EAZA zoos. Only about 30% of yards are allocated to threatened species and 48% to recommended ones.

Although 75% of zoos keep more than one deer species, many don't keep a managed or recommended one, and only relatively few keep more than one.







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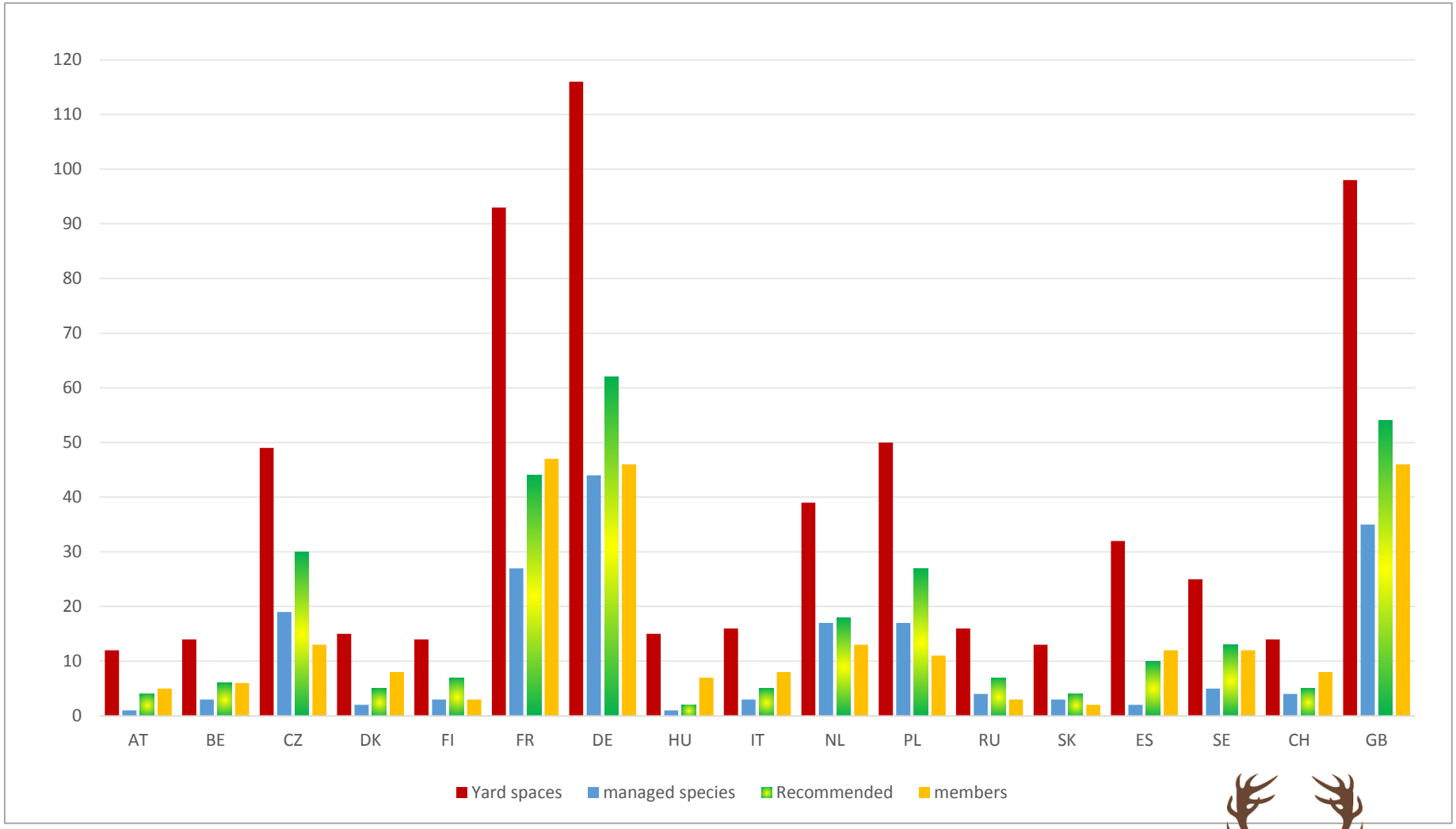

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Summary:

- Deer are popular, with many zoos keeping more than one species
- Too many yards are allocated to unimportant species
- IUCN categories are not a good parameter to assess contribution to conservation of deer taxa
- Zoos prefer to have managed species (RCP; PR) or common, easy to get species. Programs are important to encourage keeping of certain species, even if there is no genetic value to the management
- Contribution to deer conservation could be better…
- Focus should be given to promote keeping of important deer species in some countries

Activities

Population management

The EAZA Deer TAG runs 15 programs:

5 EEPs – *Dama mesopotamica* (EN); *Ceruvs nippon pseudaxis* (EW); *Rucervus eldii thamin* (EN); *Pudu puda* (VU); *Tragulus javanicus/kanchil* (DD)

7 ESBs – *Cervus albirostris* (VU); *Axis porcinus* (EN); *Rangifer tarandus fennicus* (threatened); *Tragulus nigricans* (EN*); Elaphodus cephalophus* (NT); *Rusa alfredi* (EN); *Cervus elaphus bactrianus* (threatened)

3 Monitoring – *Cervus canadensis sibiricus* ; *Axis kuhlii* (CR); *Cervus nippon taiouanus* (threateneded)

Collection planning tools

- RCP
- Deer in mixed exhibits database
- Species recommendation table
- Lazy curator's tool – sortable Excel table

Père David's deer (Milu)
Elaphurus davidianus

Distribution: Originally the species was found in eastern China, but it practically disappeared from most of the range by the 19th Century and became extinct in the wild in the early 20th Century. Currently, reintroduced animals are confined to few protected, mainly fenced, areas in the region.

Characteristics: A large deer, with stags reaching 220 Kg and hinds 170. Its most unique characteristic is the antlers, which consist of two shafts – an almost vertical, branched, foreshat and a simpler, backward pointing hindshaft.

Global wild status (IUCN): This species is listed as Extinct in the Wild, as all populations are still under captive management. The captive population in China has increased in recent years, and the possibility remains that free-ranging populations can be established sometime in the near future. When that happens, its Red List status will need to be reassessed.

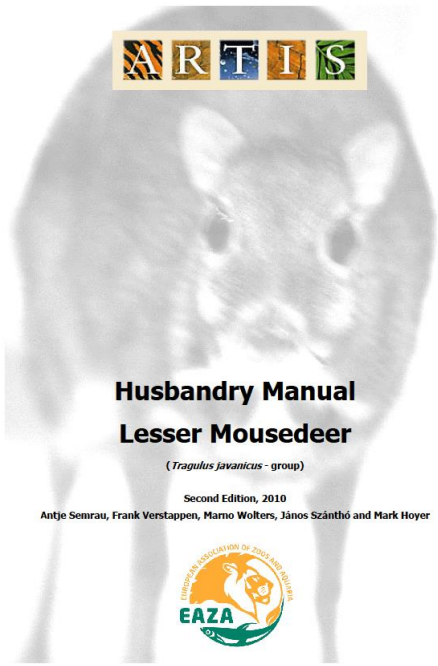
Major threats: The species became extinct in the wild due to habitat loss and hunting. Low genetic diversity has been identified as a long-term threat and it is unclear how much native habitat remains on which the species can exist in a free-ranging state.

RCP recommendation: 1 → 2 → 6 → **DERP**

Notes: The species has a great value as an example for successful conservation and the role of zoos and captive breeding in conservation. However, given the large number of individuals, small founder base and poor historical parentage records, there is limited potential for genetic and demographic management of the population in EAZA zoos and, therefore, it is recommended to be kept as a display, education and research species.

Husbandry guidelines

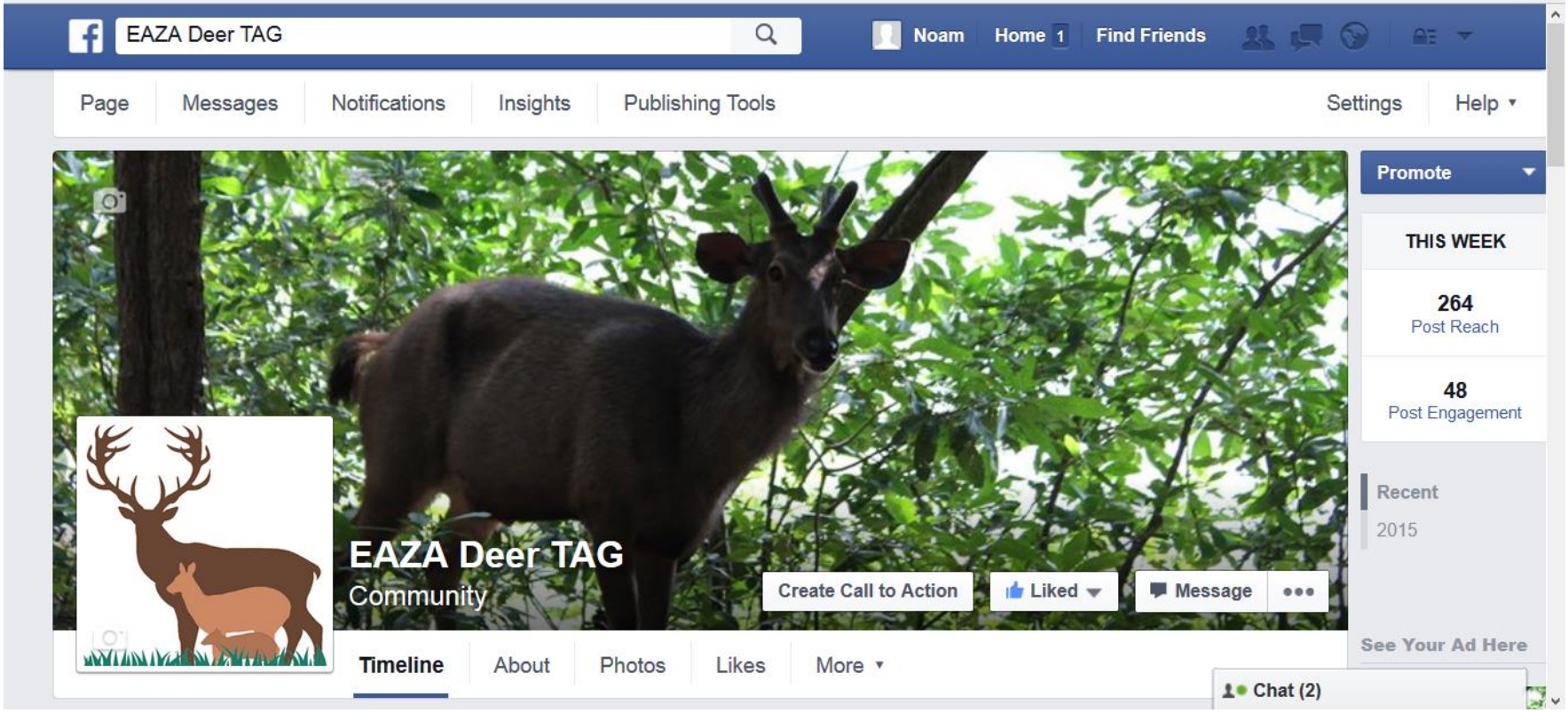
Deer TAG members produce husbandry manuals and best practice guidelines for the species that they are responsible for. These can be downloaded by all EAZA members and, sometimes, by the general public as well.



Tragulus javanicus (published)
Pudu puda (published)
Rangifer tarandus fennicus (2015)
Rucervus eldii thamin (in prep)
Elaphodus cephalophus (in prep)
Alces alces (in prep)

Deer in mixed exhibits database

Education and public outreach



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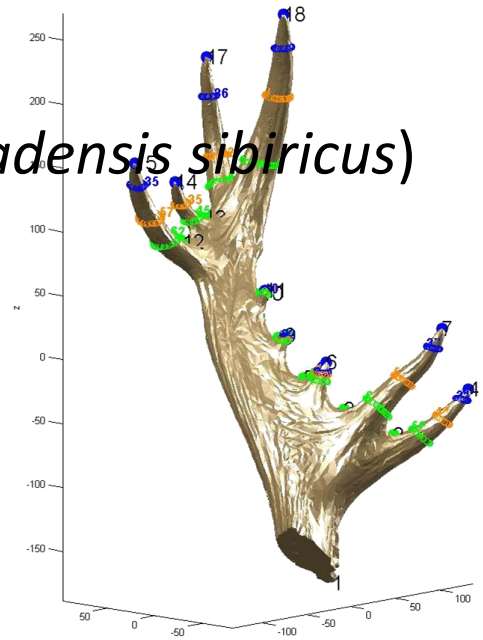
Research

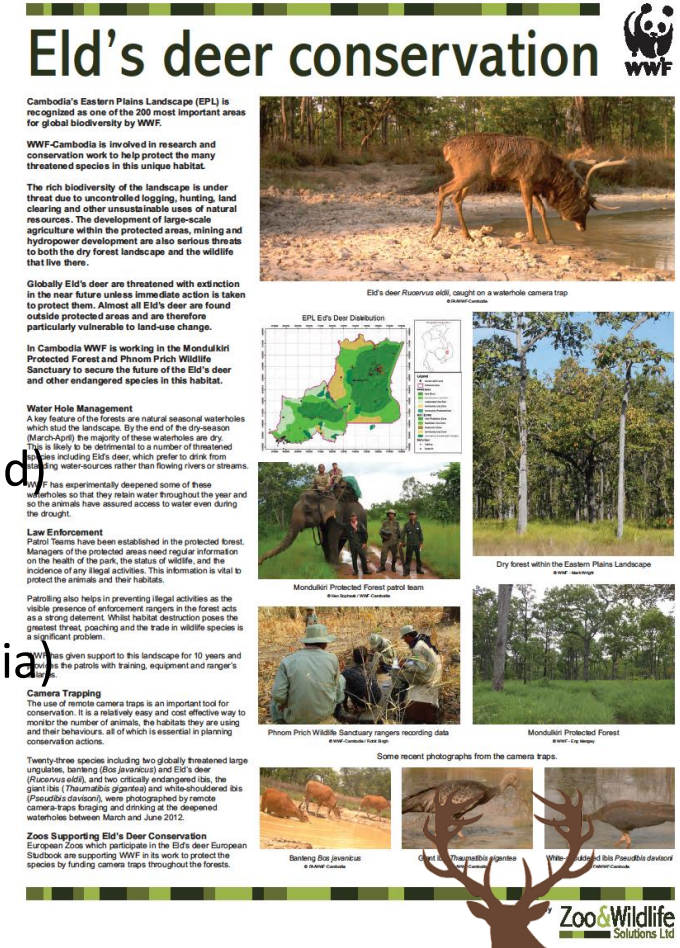
- Taxonomy:
  - Formosan sika deer (*Cervus nippon taiouanus*)
  - Indochinese sika deer (*Cervus nippon pseudaxis*)
  - Indochinese hog deer (*Axis porcinus annamiticus*)
- Artificial insemination
  - Altai wapiti (*Cervus canadensis sibiricus*)
- Behavior
- Morphology
- Post-release tracking



In-situ conservation

The TAG and its members are involved in conservation projects in range countries – providing animals, expertise, work, and fund-raising.

Rangifer tarandus fennicus reintroduction (Finland)
Rusa alfredi conservation (Philippines)
Tragulus nigricans conservation (Philippines)
Axis porcinus annamiticus conservation (Cambodia)
Rucervus eldii conservation (Cambodia)
Rucervus duvaucelii translocation (India)
Dama mesopotamica reintroduction (Israel)
Cervus Nippon pseudaxis (China – proposed)



Eld's deer conservation

WWF

Cambodia's Eastern Plains Landscape (EPL) is recognized as one of the 200 most important areas for global biodiversity by WWF.

WWF-Cambodia is involved in research and conservation work to help protect the many threatened species in this unique habitat.

The rich biodiversity of the landscape is under threat due to uncontrolled logging, hunting, land clearing and other unsustainable uses of natural resources. The development of large-scale agriculture within the protected areas, mining and hydropower development are also serious threats to both the dry forest landscape and the wildlife that live there.

Globally Eld's deer are threatened with extinction in the near future unless immediate action is taken to protect them. Almost all Eld's deer are found outside protected areas and are therefore particularly vulnerable to land-use change.

In Cambodia WWF is working in the Mondulkiri Protected Forest and Phnom Prich Wildlife Sanctuary to secure the future of the Eld's deer and other endangered species in this habitat.

Water Hole Management
A key feature of the forests are natural seasonal waterholes which stud the landscape. By the end of the dry-season (March-April) the majority of these waterholes are dry. This is likely to be detrimental to a number of threatened species including Eld's deer, which prefer to drink from standing water-sources rather than flowing rivers or streams.

WWF has experimentally deepened some of these waterholes so that they retain water throughout the year and so the animals have assured access to water even during the drought.

Law Enforcement
Patrol Teams have been established in the protected forest. Managers of the protected areas need regular information on the health of the park, the status of wildlife, and the incidence of any illegal activities. This information is vital to protect the animals and their habitats.

Patrolling also helps in preventing illegal activities as the visible presence of enforcement rangers in the forest acts as a strong deterrent. Whilst habitat destruction poses the greatest threat, poaching and the trade in wildlife species is a significant problem.

WWF has given support to this landscape for 10 years and provides the patrols with training, equipment and ranger's salaries.

Camera Trapping
The use of remote camera traps is an important tool for conservation. It is a relatively easy and cost effective way to monitor the number of animals, the habitats they are using and their behaviours, all of which is essential in planning conservation actions.

Twenty-three species including two globally threatened large ungulates, banteng (*Bos javanicus*) and Eld's deer (*Rucervus eldii*), and two critically endangered ibis, the giant ibis (*Thaumatibis gigantea*) and white-shouldered ibis (*Pseudibis davisoni*), were photographed by remote camera-traps foraging and drinking at the deepened waterholes between March and June 2012.

Zoos Supporting Eld's Deer Conservation
European Zoos which participate in the Eld's deer European Studbook are supporting WWF in its work to protect the species by funding camera traps throughout the forests.

Eld's deer *Rucervus eldii*, caught on a waterhole camera trap
© GLAWAF-Cambodia

EPL Eld's Deer Distribution

Dry forest within the Eastern Plains Landscape
© WWF - Jaya Image

Mondulkiri Protected Forest patrol team
© Brian Szychak / WWF-Cambodia

Phnom Prich Wildlife Sanctuary rangers recording data
© WWF-Cambodia / Suth Sugn

Mondulkiri Protected Forest
© WWF - Cy Harvey

Some recent photographs from the camera traps.

Banteng *Bos javanicus*
© GLAWAF-Cambodia

Giant ibis *Thaumatibis gigantea*
© WWF-Cambodia

White-shouldered Ibis *Pseudibis davisoni*
© WWF-Cambodia

Zoo&Wildlife Solutions Ltd

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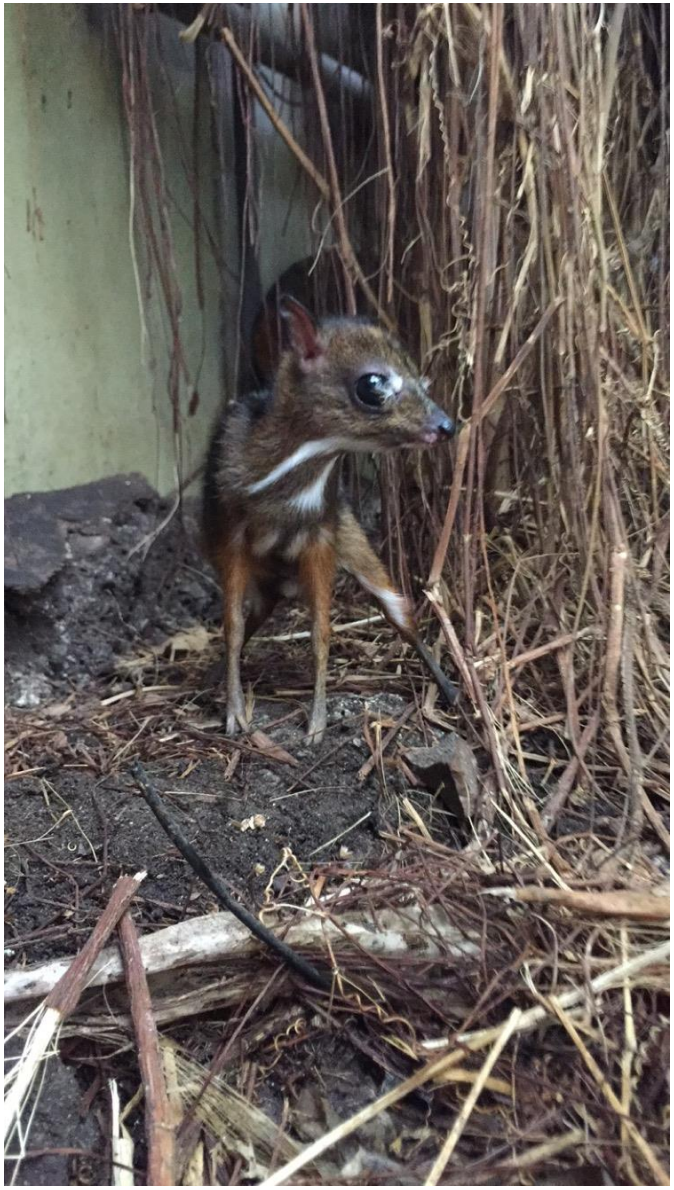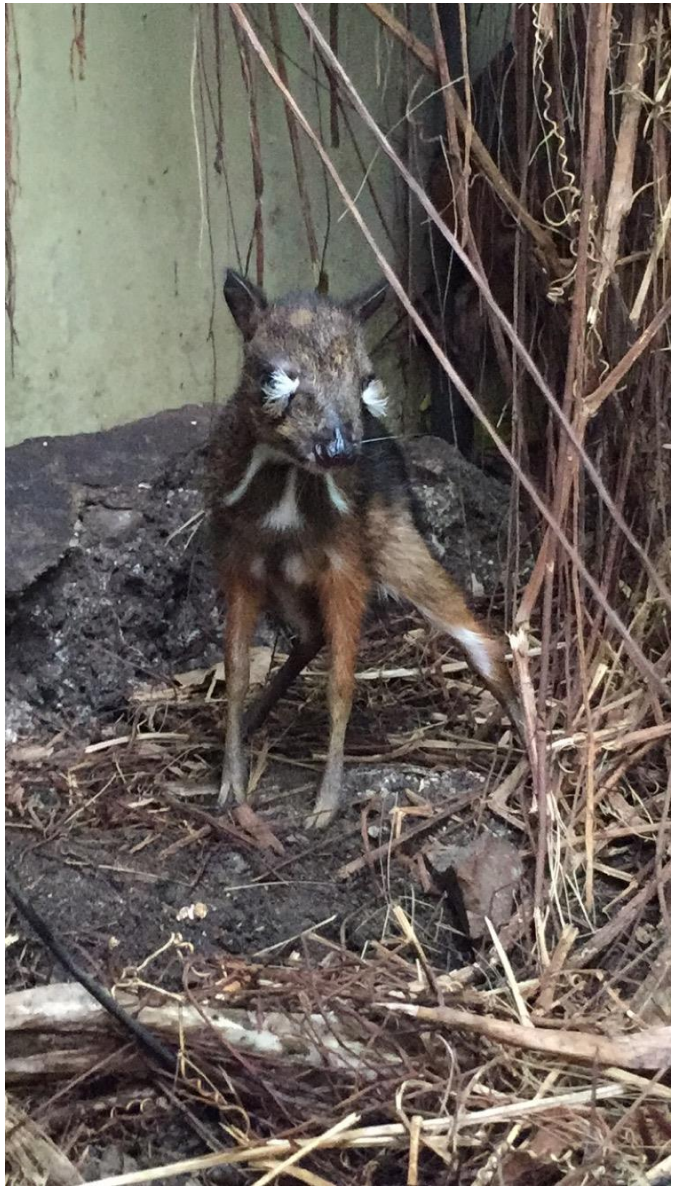
Thank you very much!