

What Role Does Knowledge of Wildlife Play in Providing Support for Species' Conservation?

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Abstract: Conservation of biodiversity is a complex issue. Apart from the creation of nature reserves, there is a plethora of other factors that are part of this complex web. One such factor is the public knowledge of species. Since public funding is imperative for the conservation of species and creation of reserves for them it is important to determine the public's awareness of species and their knowledge about them. In the absence of such awareness and knowledge, it is possible that the public may misallocate their support. In other words, resources may be provided for species that do not need support urgently. We show how availability of balanced information about species helps the public to make rational decisions and to allocate support (e.g. monetary) to species that need it most. Other implications of a 'wildlife knowledgeable' public are also discussed.

Key words: Biodiversity, Conservation, Australia's Tropical Wildlife, Public Knowledge, Balanced Information

INTRODUCTION

The importance of creating protected areas for the conservation of biodiversity has been stressed in the literature [1]. In addition, many other factors can play a positive role in species' conservation and complement and even finance the creation of such protected areas. One such factor is the public's awareness and knowledge of species. The public can support the conservation of wildlife by financial and non-financial contributions. Furthermore, knowledge of wildlife can enhance the enjoyment of wildlife and this could increase memberships in Non Governmental Organisations (NGOs) and perhaps even influence government and NGO policy decision-making.

The public's knowledge of wildlife has other ramifications for species' conservation. When public knowledge is limited, common species are likely to be better known than rare and endangered ones. This is especially so if those species have a restricted distribution. Hence, when supporting wildlife conservation, financially and otherwise, the public are likely to provide larger support for species that are common than endangered species when in fact endangered species ought to receive most support. This involves not only an inefficient allocation of resources, but also a misallocation of resources and a market failure. Such misallocations not only further support species that are already doing well and perhaps even support species that are a pest from farmers' point of view.

In order to test some of these hypotheses, a survey questionnaire was designed, amongst other goals, to determine (1) whether the selected species are known to the public; (2) If so, what is the level of their

knowledge; (3) whether the participants favour their survival; and (4) to determine the allocation of a hypothetical sum of money between the species before and after provision of balanced information. Present goal was to utilise this information to show to what extent provision of balanced information leads to the public shifting their monetary allocations from common species to those species that are endangered. Samples *et al.* [2] using separate control groups show how individuals' willingness to pay for conservation is influenced by the availability of information. Present study is unique because it covers a range of tropical species to demonstrate the public's support for species' conservation before and after provision of balanced information.

MATERIALS AND METHODS

Questionnaire Survey: The questionnaire survey was conducted among Brisbane residents during the period July-September 2002, to determine the Brisbane public's knowledge of 24 selected Australian tropical species and the values they place on each species in allocating a hypothetical sum of money for their conservation.

Considerable publicity was given about the survey by means of letter dropouts and local council newspapers. A large section of Brisbane suburbs with diverse socioeconomic backgrounds were covered. The main purpose of the survey was not revealed to avoid bias. Five sessions were conducted on weekdays and weekends to make the survey more attractive to participants. Obtaining the participation of 200 plus was the intended target and the responding participants were selected on a first come first served basis according to

the age distribution of the city of Brisbane. This was done so that the participants would be representative of Brisbane residents. This enabled us to obtain a sample that was quite diverse. Prior to this exercise the questionnaire was pre-tested among 20 undergraduates and their comments were sought. The selected Australian wildlife consisted of birds, mammals and reptiles (Table 1).

The questionnaire survey was conducted in two stages. The first hour was used to gather background information and the current knowledge about Australian wildlife and the monetary values they placed on conservation of species from a hypothetical allocation of money (Survey I). After a tea break the second stage of the study was commenced. During this session, the participants were provided with Survey II which consisted of similar questions to the first survey, together with a few additional questions. The authors also provided a colourful brochure to the participants which contained information on current status, geographical range, photographs and other relevant information for each species. The current status of species was explained well although for some species it is not straightforward. For example, for the Dugong the information provided on current status was "Common but vulnerable in Australia. It is also found in other parts of the world where in most places it is endangered". Table 1 is based on information provided in the brochure. Approximately the same amount of factual background information (approximately half a page) was provided for each species except for two common birds (Australian Magpie and Laughing Kookaburra) found in most Brisbane gardens/suburbs. The participants were instructed to fill out the second questionnaire once they got back home and return the completed survey forms within two weeks. For the next 45 min we invited Dr. Van Dyck, Curator of Mammals and Birds, Queensland Museum, to give a presentation on Australian wildlife. His lecture was mostly on the Mahogany Glider which he helped to re-discover. However, his talk included many of the tropical wildlife selected for the survey. Several skins of the selected species were also shown to the public. This was in addition to the information provided in the brochure.

RESULTS

The questionnaire results provide us with an insight of the public's knowledge of Australia's Tropical wildlife. It shows that the majority of the public are aware of the existence of the common species but it is not so when it comes to those that have a restricted range, some which are endangered (Table 1).

What is interesting is that the existence of all the common species, irrespective of whether it is a mammal, bird or a reptile are well known to the public than those species that have a restricted habitat and those that are endangered. Analysis of the data (not

reported) shows that the initial knowledge of the species is high only for common species than those species that are endangered. However, despite the level of knowledge, a large percentage of the participants were in favour of the species' existence. Only for a few species that there was a slight decrease, but it was not significant.

Another significant result is that when it comes to allocating the hypothetical sum of money for their conservation, species that are common and better known to the public get a larger allocation in most cases than those species that are endangered and which need most attention. This is so for all taxa (Fig. 1).

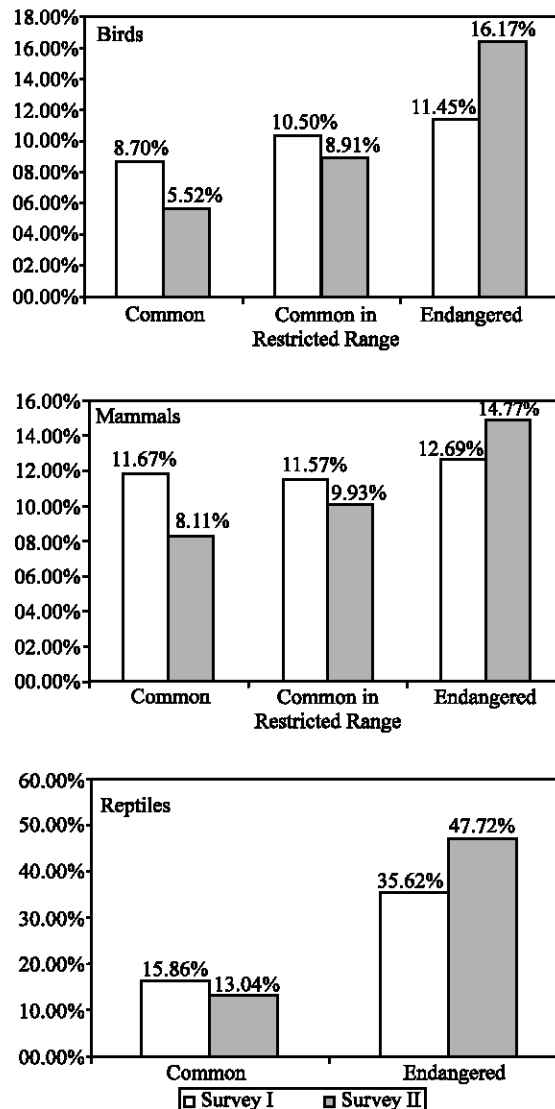


Fig. 1: Percentage Allocation of a Hypothetical Sum of Money by the Participants before and after Provision of Information about Each Species. Significant at 1% Level for One-tailed Test

However, once balanced information is provided, the public are willing to allocate a large sum of money to

Table 1: Responses to the Question whether the Species were known to the Participants during Survey I

Species and Status	Birds		
	Yes %	No %	No Response %
Common			
Laughing Kookaburra (E)	96	03	01
Australian Magpie (E)	96	03	01
Red-tailed Black Cockatoo (E)	80.5	19	0.5
Common in restricted range			
Palm Cockatoo	30.5	68	1.5
Eclectus Parrot	22.5	75	2.5
Brolga	80	19	01
Golden Bowerbird (E)	47.1	51	2.0
Endangered			
Golden-shouldered Parrot (E)	27	71	2.0
Southern Cassowary (E)	87	12	01
Gouldian Finch (E)	44	55	01
Species and Status	Mammals		
	Yes %	No %	No Response %
Common			
Red Kangaroo (E)	93.6	5.9	0.5
Dugong	89.7	10.3	00
Common in restricted range			
Lumholtz-tree Kangaroo (E)	74	26.0	00
Koala (E)	98	1.5	0.5
Northern Quoll (E)	55.9	43.1	1.0
Eastern Pebble-mound Mouse (E)	7.4	88.7	3.9
-			
Endangered			
Mahogany Glider (E)	50.5	48.5	1.0
Northern Bettong (E)	33.8	65.2	1.0
Northern Hairy-nosed Wombat (E)	82.4	12.7	4.9
Species and Status	Reptiles		
	Yes %	No %	No Response %
Common			
Saltwater Crocodile	96.1	3.4	0.5
Freshwater Crocodile (E)	95.1	4.9	00
Taipan Snake	82.4	17.6	00
Northern Long-necked Turtle (E)	64.7	34.3	1.0
Common in restricted range			
-			
-			
-			
Endangered			
Hawksbill Sea Turtle	41.7	58.3	00
-			
-			

Sources: Birds -[3-7, 11].

Mammals– [11, 12]; Reptiles-[11]. These sources were selected because they are more readily available to the public. The Handbook of Australian, New Zealand and Antarctic Birds [5, 6] was used to verify the endemicity and distribution of some bird species in the Table but was not used for the preparation of the survey brochure. Note: E = The species or at least one subspecies is endemic to Australia. The Table is based on information provided in the brochure to the participants.

those species that need most attention. The money is redistributed taking it from species that are common which do not need urgent attention. This demonstrates the existence values the public place on species. This is confirmed by other questions in the survey. It must be pointed out that Fig. 1 is an aggregate of the survey results of the participants' support before (Survey I) and after (Survey II) provision of information. However, for a small number of species such as the Northern Bettong (listed as endangered) the support after provision of information decreased while for the Dugong (listed as common) the support increased by approximately 1% after provision of information. The Lumholtz Tree-kangaroo, Eastern Pebble-mound Mouse and the Brolga (listed as common in restricted area) also received small increases in support in Survey II.

The survey results also confirm that when there is a lack of balanced information the public make their decisions based on their existing knowledge which does not necessarily lead to efficient outcomes although the intentions of the public are genuine.

What Conservation Lessons can be Drawn from the Results?: Several implications for conservation of wildlife flow from the results. The public clearly make their decisions to support wildlife based on the distribution of their current knowledge. For the majority of the public the information available is on common species. Hence, when support is provided a larger amount gets allocated to those species that are common which does not help the endangered species. However, once balanced information is provided the public are willing to change their allocations, giving more of the allocations to those species that are most in need, reversing the previous misallocations. The results show that the public are rational and place importance on existence values. This is confirmed by the change in allocations after balanced information is provided. The results highlight the need for public education, especially on species that have a restricted distribution and those that are endangered. Some of the few endangered species that were also quite well known to the public are those species that are displayed in zoos/theme parks. These species are also the subject of children's stories. Education of the public is important not only because the disappearance of species will not only go unnoticed by the large majority of the public, but also because the public are an important body whose support is needed to undertake conservation work. Public participation in conservation works in many ways. The public can potentially support (financially or otherwise) the creation of nature reserves and the recovery of endangered species. The creation of nature reserves is expensive [8] and funds for their purchase will eventually have to come from the public. Better knowledge and awareness can also increase memberships in NGOs devoted to wildlife conservation

and the public's volunteer involvement in conservation projects. Furthermore, public knowledge can influence government and NGO decision-making and the urgency to take action. The results also demonstrate that species that require urgent attention can obtain the support of the public and in bigger amounts if it is conducted appropriately. The public are willing to shift allocations when such a need arises.

DISCUSSION

The results show that the public's knowledge of the existence of some Australian tropical species is low. Most, if not all of these species that were not well known have a very restricted geographical range. Some of them are endangered. On the other hand, species that are common were better known. Despite the low knowledge of the existence of some species the importance placed on their existence was high. This includes species that are dangerous, venomous and are agricultural pests. The results show that when participants were asked to make a hypothetical allocation (Survey I), the support provided was larger for most of the better known and common species. On the other hand, those species that were poorly known (some are endangered) received lower allocations. The main reason for this behaviour is that in the absence of balanced information to make decisions, species for which information is available get higher allocations while those species that are poorly known get an average allocation which accords with Laplace's principle of 'insufficient reason' [9]. Although, this outcome is gloomy from a conservation point of view, the positive side is that the individuals were willing to change their allocations and redistribute them to species that need attention once balanced information was provided. The results demonstrate that if for instance there are two reserves to be protected, one with species that are endangered and the other with species that are less endangered and that there is a cash constraint to purchase all reserves, then it is likely that if the public have balanced information they will contribute to the purchase of the reserve with the higher number of endangered species than the one with no or fewer endangered species. On the other hand, in the absence of balanced information it is likely that the public will select the one with common species because most of the information they possess is on such species as shown. The results also show the need for public education and potentially they are a major source of funding conservation of species and reserves as demonstrated in Britain by the activities of societies such as the RSPB [10]. Public involvement in conservation such as through memberships can not only fund conservation but also influence government and NGO decision-making.

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