

Animal Diversity in Matchbox Decoration: Reflections on Biodiversity's Intrinsic Value

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Abstract— Biodiversity is thoroughly examined and represented through the art modalities. Research on the patterns of biodiversity depiction on matchboxes shows companies attract customers or raise awareness regarding ecological issues through such art. We analyzed a matchbox artwork sample with a particular focus on the representation of fauna, as it seems animals often intrigue humans more than plants and other biological realms. We categorized all painted subjects based on their lowest identifiable taxon and analyzed their occurrence as well as the level of accuracy pursued by the artists. Based on our findings, we conclude that their utilitarian value makes a list of certain species significantly more interesting to humans - a list with several yet not major differentiations throughout the eras - while standard aesthetical criteria account for a secondary yet certainly not trivial factor in biodiversity themed artwork.

Keywords— biodiversity; biodecoration, art; matchboxes; species; fauna

I. INTRODUCTION

The intrinsic as well as the utilitarian value of biodiversity have been often the object of scientific discussion, since human survival and well-being depend on them [1], [2]. It has been proven by research that being in touch with the natural environment is crucial for our psychological well-being and mental health, however humans can not satisfy easily those needs for direct interaction with nature in modern urban environments [3]. For this reason, scientific research has been focusing more on the exploration of biodiversity's intrinsic value, as an example, through the latter's presentation in visual arts. There is significant scientific interest in the artistic depictions of living beings on cave walls dating from late Upper Palaeolithic (late Pleistocene in geological terms) to the Iron Age (late Holocene, respectively), which are evidence of humans' need for communication, expression and profound understanding of the natural environment surrounding them [4]. Nowadays, while our efforts for the sustainable management of the environment intensify, the chances of success in those efforts can increase by studying humans' preferences in the context of the actions they take for the protection of the environment.

The higher sensitivity humans show for the protection of the animals over other biological kingdoms seem to be based on aesthetic preferences and the utilitarian value of animals. A recent study found that there is a clear preference for animal over plant species in the decoration of matchboxes worldwide [5]. In the same study it is noted that this depiction of animal species often has the intent of a touristic, commercial or cultural promotion, with indigenous or endemic species presented as part of a cultural heritage and a tourist attraction. However, there are also obvious discriminations among different animal species which lie on secondary characteristics [6]. For example, studies have found that humans like lions and panda bears but avoid snakes and spiders [7], [8]. Such perspectives have been permeating our collective conscience for a long time and they should concern biologists – ecologists who struggle for the conservation of biodiversity [6].

In this study, which is a continuation of our research, we attempt to present the patterns of human preference within the animal kingdom. We based our research on the analysis of matchbox art, as it is a significant part of recent commercial history and a rich source of useful information regarding our civilization and cultural expression.

II. MATERIALS AND METHODS

We conducted an extensive search on the Internet for matchbox collectors' websites and blogs. This search resulted in a sample of 979 matchboxes. For the needs of the present study we analyzed a smaller number of matchboxes ($N_F = 435$) selected from this sample, the ones consisting exclusively of art depicting fauna except for *Homo sapiens sapiens*. Identical covers found more than once were also excluded. We then classified the animal organisms found in the matchbox art to the lowest level of taxonomic hierarchy (taxon) possible, based on the discernible traits of the depicted animals and the information on the matchboxes, whenever this was provided (Table 1). For the number of taxa we detected ($N_{ca} = 179$), we calculated the number of matchboxes which presented a certain taxon (P , Presence) and the taxon's relative frequency (f_p %) in the fauna sample (N_F), according to [9].

TABLE I. LIST OF TAXA RECORDED AS BIO-DECORATION OF MATCHBOXES, WITH THE STATISTICAL DATA OF PRESENCE (P) AND RELATIVE FREQUENCY (F%).

Organism	Scientific name	Presence (P)	Relative Frequency f_p (%)	Taxonomic level / Classification
African elephant	<i>Loxodonta sp.</i>	1	0.23	Genus /Chordata
Angelfish	<i>Pterophyllum scalare</i>	1	0.23	Species/Chordata
Black-crowned crane	<i>Balearica pavonina</i>	1	0.23	Species/Chordata
Black-winged stilt	<i>Himantopus himantopus</i>	1	0.23	Species/Chordata
Blue-and-yellow tanager	<i>Rauenia bonariensis</i>	1	0.23	Species/Chordata
Bluebird	<i>Sialia sp.</i>	1	0.23	Genus/Chordata
Blue-capped motmot	<i>Momotus coeruliceps</i>	1	0.23	Species/Chordata
Blue jellyfish	<i>Cyanea lamarckii</i>	1	0.23	Species/Invertebrate
Brown rat	<i>Rattus norvegicus</i>	1	0.23	Species/Chordata
Butterflyfish	Chaetodontidae	1	0.23	Family /Chordata
Catfish	Siluriformes	1	0.23	Order/Chordata
Chimpanzee	<i>Pan troglodytes</i>	1	0.23	Species/Chordata
Cicada	Cicadoidea	1	0.23	Superfamily/Invertebrate
Coal tit	<i>Periparus ater</i>	1	0.23	Species/Chordata
Common kingfisher	<i>Alcedo atthis</i>	1	0.23	Species/Chordata
Common tern	<i>Sterna hirundo</i>	1	0.23	Species/Chordata
Corriedale sheep	<i>Ovis aries</i> (breed)	1	0.23	Subspecies/Chordata
Cougar	<i>Puma concolor</i>	1	0.23	Species/Chordata
Cowbird	<i>Molothrus sp.</i>	1	0.23	Genus/Chordata
Crested lark	<i>Galerida cristata</i>	1	0.23	Species/Chordata
Dolphin	Delphinidae	1	0.23	Family/Chordata
Eurasian hoopoe	<i>Upupa epops</i>	1	0.23	Species/Chordata
Eurasian lynx	<i>Lynx lynx</i>	1	0.23	Species/Chordata
Eurasian nuthatch	<i>Sitta europaea</i>	1	0.23	Species/Chordata
Eurasian spoonbill	<i>Platalea leucorodea</i>	1	0.23	Species/Chordata
European edible dormouse	<i>Glis glis</i>	1	0.23	Species/Chordata
European eel	<i>Anguilla anguilla</i>	1	0.23	Species/Chordata
European green woodpecker	<i>Picus viridis</i>	1	0.23	Species/Chordata
Flying cod	Exocoetidae	1	0.23	Family/Chordata
Gnat	Diptera	1	0.23	Order/Invertebrate
Golden eagle	<i>Aquila chrysaetos</i>	1	0.23	Species/Chordata
Goose	<i>Anser anser domesticus</i>	1	0.23	Subspecies/Chordata
Granada hare	<i>Lepus granatensis</i>	1	0.23	Species/Chordata
Greater rhea	<i>Rhea americana</i>	1	0.23	Species/Chordata
Great spotted woodpecker	<i>Dendrocopos major</i>	1	0.23	Species/Chordata
Great white pelican	<i>Pelecanus onocrotalus</i>	1	0.23	Species/Chordata
Green iguana	<i>Iguana iguana</i>	1	0.23	Species/Chordata
Green-rumped parrotlet	<i>Forpus passerinus</i>	1	0.23	Species/Chordata
Grey crowned crane	<i>Balearica regulorum</i>	1	0.23	Species/Chordata
Guinea pig	<i>Cavia porcellus</i>	1	0.23	Species/Chordata
Guira cuckoo	<i>Guira guira</i>	1	0.23	Species/Chordata
Hammerhead shark	Sphyrnidae	1	0.23	Family/Chordata

Herring	<i>Clupea sp.</i>	1	0.23	Genus/Chordata
Hippopotamus	<i>Hippopotamus amphibius</i>	1	0.23	Species/Chordata
Hummingbird	Trochilidae	1	0.23	Family/Chordata
Iberian lynx	<i>Lynx pardinus</i>	1	0.23	Species/Chordata
Jaguar	<i>Panther onca</i>	1	0.23	Species/Chordata
King Ragworm	<i>Alitta virens</i>	1	0.23	Species/ Invertebrate
Least weasel	<i>Mustela nivalis</i>	1	0.23	Species/Chordata
Leatherback sea turtle	<i>Dermochelys coriacea</i>	1	0.23	Species/Chordata
Leopard	<i>Panthera pardus</i>	1	0.23	Species/Chordata
Lesser flamingo	<i>Phoeniconaias minor</i>	1	0.23	Species/Chordata
Little owl	<i>Athene noctua</i>	1	0.23	Species/Chordata
Llama	<i>Llama llama</i>	1	0.23	Species/Chordata
Longfin inshore squid	<i>Doryteuthis pealeii</i>	1	0.23	Species/ Invertebrate
Major Michell's cockatoo	<i>Lophochroa leadbeateri</i>	1	0.23	Species/Chordata
Mandrill	<i>Mandrillus sphinx</i>	1	0.23	Species/Chordata
Marten	<i>Martes sp.</i>	1	0.23	Genus/Chordata
Mole	Talpidae	1	0.23	Family/Chordata
Mute swan	<i>Cygnus olor</i>	1	0.23	Species/Chordata
Myna	Sturnidae	1	0.23	Family/Chordata
North African hedgehog	<i>Atelerix algirus</i>	1	0.23	Species/Chordata
Northern cardinal	<i>Cardinalis cardinalis</i>	1	0.23	Species/Chordata
Ocelot	<i>Leopardus pardalis</i>	1	0.23	Species/Chordata
Oriole blackbird	<i>Gymnomystax mexicanus</i>	1	0.23	Species/Chordata
Oyster	Bivalvia	1	0.23	Class/ Invertebrate
Pacific white-sided dolphin	<i>Lagenorhynchus obliquidens</i>	1	0.23	Species/Chordata
Panther	<i>Panthera sp.</i>	1	0.23	Genus/Chordata
Parrot	Psittaciformes	1	0.23	Order/Chordata
Platinum acara	<i>Andinoacara latifrons</i>	1	0.23	Species/Chordata
Platypus	<i>Ornithorhynchus anatinus</i>	1	0.23	Species/Chordata
Purple dye murex	<i>Bolinus brandaris</i>	1	0.23	Species/ Invertebrate
Racoon	<i>Procyon lotor</i>	1	0.23	Species/Chordata
Ray	Batoidea	1	0.23	Superorder/Chordata
Red-breasted meadowlark	<i>Leistes militaris</i>	1	0.23	Species/Chordata
Red deer	<i>Cervus elaphus</i>	1	0.23	Species/Chordata
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	1	0.23	Species/Chordata
Reindeer	<i>Rangifer tarandus</i>	1	0.23	Species/Chordata
Rhinoceros	Rhinocerotidae	1	0.23	Family/Chordata
Scissor-tailed flycatcher	<i>Tyrannus forficatus</i>	1	0.23	Species/Chordata
Sea turtle	Cheloniidae	1	0.23	Family/Chordata
Shrimp	Caridea	1	0.23	Infraorder/Invertebrate
Siberian tiger	<i>Panthera tigris altaica</i>	1	0.23	Subspecies/Chordata
Siamese fighting fish	<i>Betta splendens</i>	1	0.23	Species/Chordata
Snake	Serpentes	1	0.23	Suborder/Chordata
Southern screamer	<i>Chauna torquata</i>	1	0.23	Species/Chordata
Spanish red deer	<i>Cervus elaphus hispanicus</i>	1	0.23	Subspecies/Chordata
Sparrow	Passeridae	1	0.23	Family/Chordata

Sperm whale	<i>Physeter macrocephalus</i>	1	0.23	Species/Chordata
Squirrel cuckoo	<i>Piaya cayana</i>	1	0.23	Species/Chordata
Stag beetle	Lucanidae	1	0.23	Family/Invertebrata
Sumatra barb	<i>Puntigrus tetrazona</i>	1	0.23	Species/Chordata
Sun parakeet	<i>Aratinga solstitialis</i>	1	0.23	Species/Chordata
Swan goose	<i>Anser cygnoides</i>	1	0.23	Species/Chordata
Swordfish	<i>Xiphias gladius</i>	1	0.23	Species/Chordata
Tasmanian wolf	<i>Thylacinus cynocephalus</i>	1	0.23	Species/Chordata
Tiger shark	<i>Galeocerdo cuvier</i>	1	0.23	Species/Chordata
Tinamu	Tinamidae	1	0.23	Family/Chordata
True fox	<i>Vulpes sp.</i>	1	0.23	Genus/Chordata
Veiltail goldfish	<i>Carassius auratus</i>	1	0.23	Species/Chordata
Venezuelan troupial	<i>Icterus icterus</i>	1	0.23	Species/Chordata
Walrus	<i>Odobenus rosmarus</i>	1	0.23	Species/Chordata
Western capercaillie	<i>Tetrao urogallus</i>	1	0.23	Species/Chordata
White monjita	<i>Xolmis irupero</i>	1	0.23	Species/Chordata
White rhinoceros	<i>Ceratotherium simum</i>	1	0.23	Species/Chordata
White stork	<i>Ciconia ciconia</i>	1	0.23	Species/Chordata
Wild boar	<i>Sus scrofa</i>	1	0.23	Species/Chordata
Woodpecker	<i>Dendrocopos sp.</i>	1	0.23	Genus/Chordata
Yellow cardinal	<i>Gubernatrix cristata</i>	1	0.23	Species/Chordata
Yellow-fronted woodpecker	<i>Melanerpes flavifrons</i>	1	0.23	Species/Chordata
Yellow-hooded blackbird	<i>Chrysomus icterocephalus</i>	1	0.23	Species/Chordata
Yellow-rumped cachique	<i>Cacicus cela</i>	1	0.23	Species/Chordata
Amami rabbit	<i>Pentalagus furnessi</i>	2	0.46	Species/Chordata
Black rat	<i>Rattus rattus</i>	2	0.46	Species/Chordata
Crab	Brachyura	2	0.46	Infraorder/Invertebrate
Crocodile	Crocodylidae	2	0.46	Family/Chordata
Donkey	<i>Equus africanus asinus</i>	2	0.46	Species/Chordata
Dromedary	<i>Camelus dromedarius</i>	2	0.46	Species/Chordata
Eurasian otter	<i>Lutra lutra</i>	2	0.46	Species/Chordata
Fly	<i>Musca domestica</i>	2	0.46	Species/ Invertebrate
Frog	Anura	2	0.46	Order/Chordata
Giraffe	<i>Giraffa sp.</i>	2	0.46	Genus/Chordata
Grey wolf	<i>Canis lupus</i>	2	0.46	Species/Chordata
Hedgehog	Erinaceinae	2	0.46	Subfamily/Chordata
Jellyfish	Medusozoa	2	0.46	Subphylum/ Invertebrate
Kangaroo	Macropodidae	2	0.46	Family/Chordata
Koala	<i>Phascolarctos cinereus</i>	2	0.46	Species/Chordata
Malayan tapir	<i>Tapirus indicus</i>	2	0.46	Species/Chordata
Mallard	<i>Anas platyrhynchos</i>	2	0.46	Species/Chordata
Mouse	<i>Mus musculus</i>	2	0.46	Species/Chordata
Octopus	Octopoda	2	0.46	Order/Invertebrate
Ostrich	<i>Struthio camelus</i>	2	0.46	Species/Chordata
Polar bear	<i>Ursus maritimus</i>	2	0.46	Species/Chordata
Red squirrel	<i>Sciurus vulgaris</i>	2	0.46	Species/Chordata

Seal	Phocidae	2	0.46	Family/Chordata
Sheep	<i>Ovis aries</i>	2	0.46	Species/Chordata
Snail	Gastropoda	2	0.46	Class/ Invertebrate
Stork	Ciconiidae	2	0.46	Family/Chordata
Swan	<i>Cygnus sp.</i>	2	0.46	Genus/Chordata
Turtle	Testudinidae	2	0.46	Family/Chordata
Andean condor	<i>Vultur gryphus</i>	3	0.69	Species/Chordata
Ant	Formicidae	3	0.69	Family/Invertebrate
Bat	Chiroptera	3	0.69	Order/Chordata
Bee	<i>Anthophila sp.</i>	3	0.69	Genus/Invertebrate
Common raven	<i>Corvus corax</i>	3	0.69	Species/Chordata
Elk	<i>Alces alces</i>	3	0.69	Species/Chordata
Heron	Ardeidae	3	0.69	Family/Chordata
Japanese spiny lobster	<i>Panulirus japonicus</i>	3	0.69	Species/Invertebrate
Penguin	Spheniscidae	3	0.69	Family/Chordata
Spider	Araneae	3	0.69	Order/Invertebrate
Squirrel	Sciuridae	3	0.69	Family/Chordata
Swallow	<i>Hirundo sp.</i>	3	0.69	Genus/Chordata
Zebra	<i>Equus zebra</i>	3	0.69	Species/Chordata
Asian black bear	<i>Ursus thibetanus</i>	4	0.92	Species/Chordata
Passerine bird	Passeriformes	4	0.92	Order/Chordata
Peafowl	<i>Pavonini sp.</i>	4	0.92	Genus/Chordata
Pig	<i>Sus domesticus</i>	4	0.92	Species/Chordata
Eagle	Accipitridae	5	1.15	Family/Chordata
Giant panda	<i>Ailuropoda melanoleuca</i>	5	1.15	Species/Chordata
Sika deer	<i>Cervus nippon</i>	5	1.15	Species/Chordata
Hare	<i>Lepus sp.</i>	6	1.38	Genus/Chordata
Rabbit	Leporidae	6	1.38	Family/Chordata
Brown bear	<i>Ursus arctos</i>	7	1.61	Species/Chordata
Deer	Cervidae	7	1.61	Family/Chordata
Goat	<i>Capra hircus</i>	7	1.61	Species/Chordata
Owl	Strigiformes	8	1.84	Order/Chordata
Pigeon	Columbidae	8	1.84	Family/Chordata
Zebu	<i>Bos indicus</i>	8	1.84	Species/Chordata
Dog	<i>Canis lupus familiaris</i>	9	2.07	Subspecies/Chordata
Chicken	<i>Gallus gallus domesticus</i>	10	2.3	Subspecies/Chordata
Cow	<i>Bos taurus</i>	10	2.3	Species/Chordata
Butterfly	Rhopalocera	11	2.53	Suborder/Invertebrate
Red fox	<i>Vulpes vulpes</i>	11	2.53	Species/Chordata
Asian elephant	<i>Elephas maximus</i>	13	2.99	Species/Chordata
Old world monkey	Cercopitheidae	13	2.99	Family/Chordata
Tiger	<i>Panthera tigris</i>	14	3.22	Species/Chordata
Cat	<i>Felis catus</i>	19	4.37	Species/Chordata
Lion	<i>Panthera leo</i>	22	5.06	Species/Chordata
Horse	<i>Equus caballus</i>	27	6.21	Species/Chordata

Animals deemed as unclassifiable were usually chordates of terrestrial and aerial habitats for which a classification lower than that of the Class was impossible, partly due to the artist's liberal artistic expression or apparent indifference towards a scientific and realistic approach. However, we made the conscious decision to include the higher taxa of marine chordates and all invertebrates such as Arthropoda and Mollusca, taking into account the significantly less familiarity artists and customers typically have towards these animals, which inevitably affects the accuracy of the artwork and our own chances at a reliable lower classification.

Specifically, we used the following equations for the statistical analysis of the data.

These variables (P, f, N, Q) are described as follows:

P = the absolute number of appearances a taxon makes in the matchbox sample,

f_p = the relative frequency of a taxon in the fauna sample, calculated as:

$$f_p = P * 100 / N_F \quad (1),$$

where N_F is the absolute number of fauna depicting matchboxes ($N_F = 435$).

N_p is the absolute number of classified taxa for which:

$$Q_p = N_p * 100 / N_{ca} \quad (2),$$

where N_{ca} is the absolute number of classified animal taxa in the sample ($N_{ca} = 179$) and Q_p is the percentage of taxa that appear for the same number of times P in the sample (Table 2).

III. RESULTS AND DISCUSSION

The website and blog search resulted in a 979-strong matchbox sample originating from 44 countries. Identical matchboxes were excluded from further analysis, reducing the sample to 772 matchboxes. The matchboxes featuring bio-decoration were 534. Animal representation was recorded in 435 of these (477 if we include *Homo sapiens sapiens*). Only 179 taxa of animals were depicted accurately enough to be safely classified.

Table 1 presents the recognizable taxa that decorate the matchboxes. A significant percentage of these classified animals ($Q_{ch} = 89.38\%$, $N_{ch} = 160$) are Chordata while 19 (10.61%) of them are Invertebrates. The clear preference of matchbox companies for the Chordata is likely linked to the comparative familiarity the average customer has with this group of animals. Most of the animals were classified to the level of species (120 species – 64.048%), followed by 28 and 14 animals which were classified to the level of their family (15.64%) and genus (7.82%) respectively. The remaining 9.5% refers to other taxonomic classifications (Fig. 1).

Based on the results concentrated on Table 2, 112 taxa ($Q_p = 62.5\%$) appear as themes in the animal matchbox decoration only once each ($P=1$). These are followed by 45 taxa ($Q_p = 25.14\%$), whose occurrence in our sample belongs to the range $1 < P \leq 4$. It was also found that 12 more taxa ($Q_p = 6.70\%$) had a presence range of $4 < P < 10$ and finally 10 taxa ($Q_p = 5.59\%$) were used as inspiration for matchbox artwork 10 times or more.

Although the taxa that appear only once are the majority among our classified taxa ($N_p = 112$, $Q_p = 62.5\%$), it seems that the matchboxes (N_m) that feature taxa with $P \geq 10$ ($N_m = 150$) comprise overall more than one third ($f_p = 35\%$) of our sample depicting fauna ($N_F = 435$). It should be noted that many matchboxes depict more than one animals simultaneously. In specific, the taxa *Gallus gallus domesticus* and *Bos taurus* are represented with a frequency $f_p = 2.30\%$, the suborder Rhopalocera and the species *Vulpes vulpes* appear with a frequency $f_p = 2.53\%$ each, *Elephas maximus* and the family Cercopithecidae appear with $f_p = 2.99\%$ each, *Panthera tigris* has $f_p = 3.22\%$, *Felis catus* has $f_p = 4.37\%$, for *Panthera leo* it's $f_p = 5.06\%$ and *Equus caballus* is the most common animal species found in the matchboxes, appearing 27 times ($f_p = 6.21\%$) (Table 1).

TABLE 2. PERCENTAGES (Q_p) OF DIFFERENT OCCURRENCES (P) FOR THE 179 CLASSIFIED TAXA.

N' taxa	PRESENCE (P)	Q_p %
112	1	62.5
28	2	15.5
13	3	7.3
4	4	2.2
3	5	1.7
2	6	1.1
3	7	1.7
3	8	1.7
1	9	0.6
2	10	1.1
2	11	1.1
2	13	1.1
1	14	0.6
1	19	0.6
1	22	0.6
1	27	0.6
179		100

62.5% of the taxa appear only once while only 2.4% of the taxa appear 14 or more times.

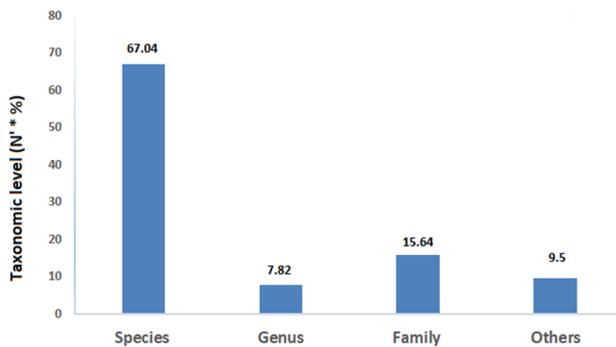


Fig 1. Percentage distribution of the taxonomic classification in matchbox bio-decoration.

Based on this analysis, we conclude that match companies have certain preferences regarding the decoration of their matchboxes. These preferences are associated with animals that have direct utilitarian value to humans, as is the case with the species *Gallus gallus domesticus* (chicken), *Bos taurus* (cow), *Elephas maximus* (elephant) *Equus caballus* (horse), which serve as livestock or means of transportation. Indirect utilitarian value is known for other animals frequently depicted on the matchboxes: this includes house pets like *Felis catus* (cat) and *Canis lupus familiaris* (dog) but also other species with intrinsic value as reflected by their ex situ conservation in zoological parks or their wide presence in literature and folklore, i.e. species of the suborder Rhopalocera (butterflies), species of the family Cercopithecidae (old world monkeys), *Vulpes vulpes* (red fox). Similar observations have been made in [10], in which the Homeric Epics were studied in search of information about the biodiversity in the Bronze Age. Additionally, it is a fact that sometimes the utilitarian value of an animal overshadows more or less its intrinsic value, as it happened with Giant Panda (*Ailuropoda melanoleuca*, which was turned into a symbol of the People's Republic of China and even an Olympic mascot (Beijing 2008 Olympic Games). This agrees with our findings that in many instances the utilitarian value of the animals was pronounced through the matchbox artwork.

In our research we found that the three most popular animals featured in matchbox artwork were the horse (1st), the "lion king" (2nd), and the cat (3rd), as the most popular house pet. These were followed, from more to less popular, by the tiger, monkeys, the elephant, the red fox, butterflies, bovine, the chicken and the dog. We compared these results with the findings of [10] and observed some differentiations; the researchers found the most frequently referenced animals to be: 1) the horse, 2) bovine, 3) the pig, 4) the dog, 5) the goat and 6) the lamb. These differentiations seem to stem from the different priorities humans had in these distant chronological eras. The horse remains an animal with prominent and varied utilitarian value to humans throughout the eras and the dog maintains his place as "the man's best friend", however we can see how the references

in the ancient epics otherwise reflect the urgency of nutritional requirements while the comparative nutritional abundance of the 20th century has helped humans shift their interests towards the protection and conservation of wildlife and examine their own purpose and value through their interactions with nature.

Judging from all the above, it is clear that animal depictions and references vary depending on the era and the issues that are trending in social interactions or challenging humanity during its course. Additionally, according to [6], the preferences people express are dependent on aesthetic criteria that may come naturally to them or are promoted by the media. For example, [6] observed that people showed preference for penguins with more vibrant or intricate color patterns on their feathers over other penguin species. This was the case in our results as well. Match companies opted more frequently for the depiction of large, often perceived as beautiful mammals (i.e tiger, lion, horse) over other species and taxonomic classes. This was clearly an advertising strategy in order to attract the customer with the beauty and allure that is typically attributed to certain animals as opposed to others that might appear indifferent or repulsive to humans.

Conclusively, the results of this study work as further evidence that the priorities of the human beings regarding the conservation of the utilitarian and intrinsic value of biodiversity are dependent on the primal instinct of survival and the urgent needs of humanity. However, the tremendous impact of cultural heritage, conventional beauty standards and advertising strategies can be used successfully in order to determine man's relationship with nature and then inspire interest and action towards nature's appreciation and protection.

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