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# 1 **Flagship events and biodiversity conservation**

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## 21 22 **Abstract**

23 Flagship species are a highly effective approach in conservation. We propose the distinct but  
24 complementary concept of flagship events: natural or anthropogenic occurrences that attract public  
25 attention. Flagship events have high potential value for biodiversity conservation, by engaging  
26 people with wildlife and helping to garner support for conservation efforts.

27

28 **Keywords:** conservation marketing; flagship individuals; flagship species; focusing event; public  
29 attention.

30

### 31 **The concept of flagship events**

32 Conservation campaigns use flagship species to raise interest and to attract public and funding  
33 support for wider conservation problems [1-3]. Flagship species are selected or adopted based on  
34 particular traits that appeal to the target audience [1,2]. Recently, the ‘flagship’ concept has been  
35 expanded to also include, for example, ecosystems [4] and individuals [5]. The use of conservation  
36 flagships is considered to be one of the most effective approaches in conservation marketing,  
37 advocacy and engagement [3,5].

38 We propose here a related concept of *flagship events*, which represent natural or  
39 anthropogenic occurrences that attract public attention, engage people with the challenges that  
40 biodiversity is facing, and garnering support for conservation efforts. Some flagship events are  
41 comparable with, or build on, ‘focusing events’, described by political scientists as sudden,  
42 relatively uncommon occurrences that concentrate attention on previously dormant issues [6].  
43 Flagship events tend to arise from conservation marketing campaigns and/or extensive media  
44 coverage of particular incidents, including striking natural phenomena, environmental disasters, or  
45 other events of importance for conservation. They represent a potentially powerful tool in  
46 conservation. While typically short-lived, if harnessed appropriately they can generate or enhance  
47 public awareness and help mobilize necessary support for conservation goals [7]. Beside their  
48 capacity for global outreach and effects on salience of broader conservation challenges, flagship  
49 events also have a strong potential capacity to promote local efforts.

50

### 51 **Defining flagship events**

52 Flagship events can be either natural or anthropogenic, and include single or recurrent, and irregular

53 or seasonal events (Figure 1). Natural flagship events include large-scale animal migrations or  
54 aggregations, or visually compelling phenological or developmental stages – for example, upstream  
55 salmonid migrations, collective emergence of Ephemeroptera (Figure 2a), bioluminescent algal  
56 blooms, or massive blossoming. Anthropogenic events include disasters and accidents (Figure 2b),  
57 important discoveries, species extinctions or rediscoveries (Figure 2c), or planned events like  
58 ‘animal awareness days’ that focus on particular species or groups. For example, the World Bee Day  
59 (May 20) and the International Jaguar Day (Nov 29) were established to raise awareness about  
60 pollinators and the jaguar (*Panthera onca*) respectively: their importance for the ecosystem, key  
61 threats and necessary conservation efforts.

62 Events can be either anticipated or unexpected, which can strongly affect their potential to  
63 promote conservation goals (Figure 1) [7]. Flagship events can be an especially effective tool if they  
64 are recurrent and/or can be anticipated, by allowing planning and preparation of conservation  
65 marketing campaigns [7]. For example, the Velas Turtle Festival is organized by local communities  
66 and conservation organisations in March each year in the Velas village in Maharashtra, India, to  
67 both celebrate and protect mass nesting of the olive ridley sea turtle (*Lepidochelys olivacea*). On the  
68 other hand, isolated and unexpected events, such as oil spills leading to the deaths of thousands of  
69 animals, can act as strong public ‘wake up’ calls and precipitate changes in conservation policy and  
70 practice. One such event was the 1969 Cuyahoga River Fire in Ohio, USA. The river, heavily  
71 polluted by industrial effluents and communal sewage, caught fire at least 14 times, with the 1969  
72 fire receiving major national and international media coverage. This event is believed to have  
73 strongly influenced the rise of the environmental movement in the United States, contributing  
74 among other things to the adoption of a series of environmental laws, establishment of the  
75 Environmental Protection Agency, and the creation of the Earth Day [8].

76

### 77 **Historical flagship events**

78 Beside contemporary events, which can be used as flagships while still unfolding, another category

79 of flagships are historical events, which can be used for conservation efforts long after they have  
80 ended. These include events that occurred only once, such as historic accidents (e.g., nuclear tests at  
81 the Bikini Atoll (Marshall Islands) during 1946-1958, or Exxon Valdez Oil Spill (Alaska, USA);  
82 Figure 2b) and other events that continue to mobilise society and draw attention to conservation  
83 issues (e.g., murder of Chico Mendes in 1988, an environmental activist who fought for  
84 preservation of the Amazon rainforest and human rights of Indigenous People). They might also be  
85 wildlife events that were historically recurrent, but no longer occur due to a species' extinction. For  
86 example, the occurrence of massive flocks of extinct passenger pigeons (*Ectopistes migratorius*)  
87 during the breeding season, reportedly numbering several billions of individuals at the time of  
88 European colonization of North America, continues to be a source of wonder and imagination [9].  
89 Such historical events can still feature in literature and art, and be used as symbols or examples of  
90 historical reference points, as well as inspire 'de-extinction' efforts.

91

## 92 **Generating and leveraging flagship events**

93 Conservation campaigns can themselves generate flagship events, for example through the  
94 organization of irregular, targeted actions such as ivory destruction (Figure 2d) [10], or the  
95 establishment of recurrent, global or local conservation-themed memorial days. Such public events  
96 are able to produce substantial impact on the target audience, although available evidence is not yet  
97 very robust [11]. The timing of such events can be driven by natural processes (e.g., related to the  
98 timing of annual animal migrations) or based on a historic event. For example, the National  
99 Threatened Species Day in Australia, held on September 7, was initiated with the aim to  
100 commemorate the anniversary of the death of the last captive thylacine (*Thylacinus cynocephalus*)  
101 in Hobart zoo in 1936, but it has evolved over time to bring attention to the broader issue of  
102 threatened species [12]. Arbitrarily setting the timing of events is possible, too, but might be less  
103 effective.

104 How an event will arise is largely case-specific. In some cases, appealing traits or

105 controversy may initially drive media coverage and public attention towards an event, which  
106 afterwards gets selected and harnessed by a conservation marketing campaign. In others, a  
107 passionate advocate or an organization may attract attention to an event that would otherwise go  
108 largely unnoticed.

109

### 110 **Flagship events complement other flagship concepts**

111 The concept of a flagship event is distinct from, but complementary to, other flagship concepts  
112 [1,4,5]. For example, flagship individuals also often come to prominence through focusing events.  
113 Such was the fate of Sam the koala (*Phascolarctos cinereus*), a victim of violent ‘Black Saturday’  
114 Victorian bushfires in Australia in 2009. A photograph featuring a firefighter giving this female  
115 koala a drink led to a surge in media attention and global awareness on the extent and threats of  
116 bushfires to biodiversity [5]. Sam’s photos became representative of the entire disaster and were  
117 widely used to raise money for disaster-relief efforts [13]. Similarly, natural seasonal events tend to  
118 attract greater attention if they are represented by a charismatic, flagship species, or occur in a  
119 flagship ecosystem. On the other hand, natural events such as massive emergences or blooms  
120 (Figure 2a) are not necessarily associated with charismatic individuals, species, or ecosystems.  
121 Flagship categories are not mutually exclusive, and a flagship event can also be simultaneously  
122 used in marketing activities based on other concepts, such as flagship species.

123         There are several caveats and challenges that need to be carefully considered when  
124 leveraging flagship events in conservation. The inherent transience of focusing events poses a  
125 challenge for conservation marketing, requiring careful organization to ensure that they will be  
126 leveraged timely and effectively, to mitigate effects of attention decay [7]. Furthermore, improper  
127 use of flagship events, especially due to the tendency of some media outlets and organizations to  
128 resort to sensationalism, could lead to a distorted, oversimplified or ineffective coverage of the  
129 event [5,7,14]. Finally, basing flagship events on seasonal natural phenomena can potentially lead to  
130 unsustainable tourism, unsustainable or illegal exploitation and wildlife trade, as well as unforeseen

131 conflicts. Any campaign or event-focused initiative concept should be properly evaluated using a  
132 range of methods, including experimental setups and novel approaches, such as culturomic indices  
133 [7], to understand its effectiveness and potential societal impacts. While yet to be formally tested,  
134 harnessing flagship events has high potential value for biodiversity conservation.

135

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138 the “tapir frog” included in Fig. 2.

139

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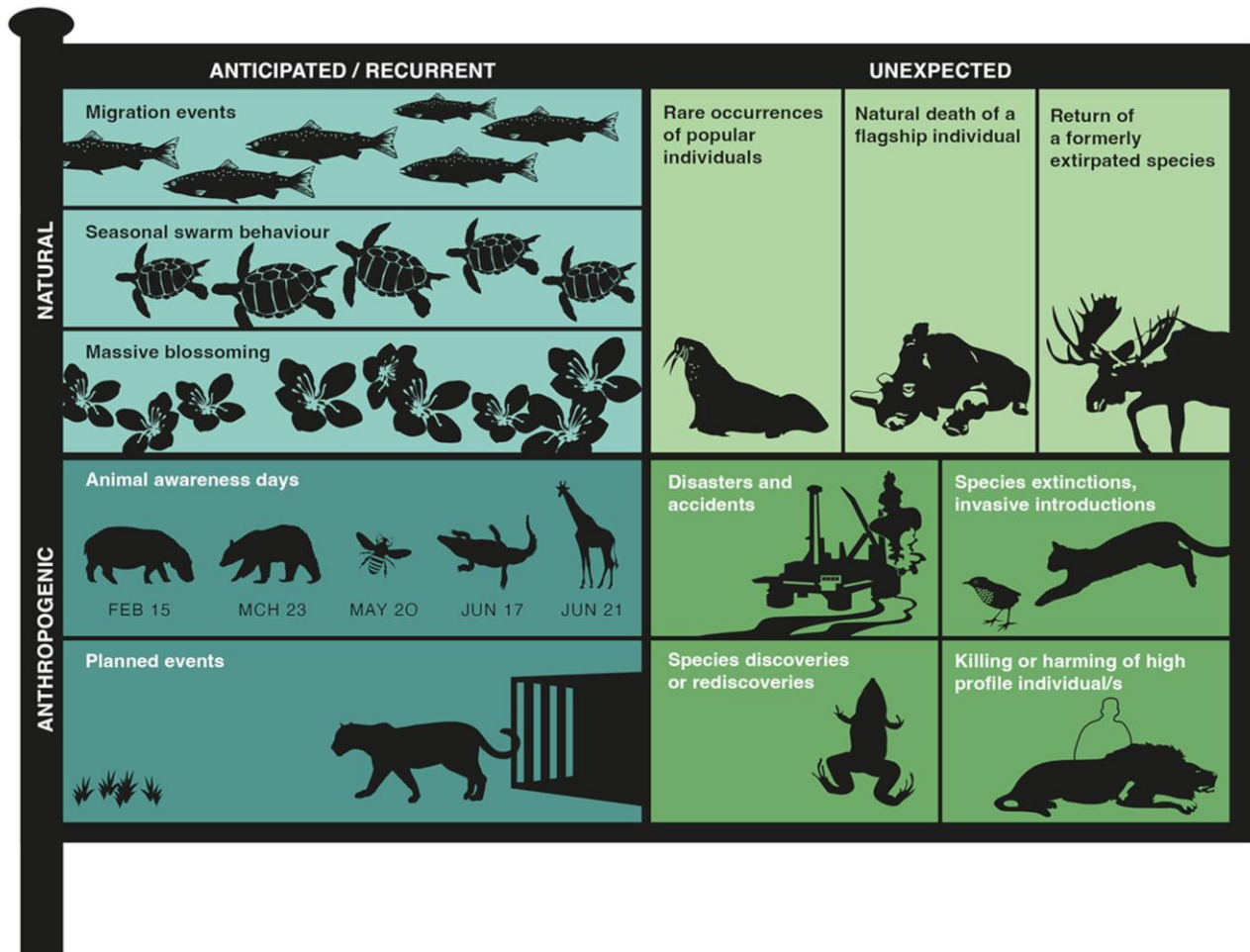
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184 **Figure 1. Types and defining characteristics of flagship events.** Events are differentiated based  
 185 on their origin (natural or anthropogenic) and predictability (anticipated/recurrent or unexpected).

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187

188 **Figure 2. Examples of flagship events.** (a) The annual massive emergence of the Tisza mayfly  
189 (*Palingenia longicauda*) in the Tisza River (Serbia) attracts considerable public attention and  
190 tourism, with an annual, conservation-themed “Tisza blossoming festival” (photo: Kovacs Szilard);  
191 (b) the Exxon Valdez Oil Spill (Alaska, USA), resulting in 11 million gallons of crude oil released  
192 into the sea, led to new legislation and improved standards against such accidents (photo: NOAA's  
193 National Ocean Service); (c) the discovery of the “tapir frog” (*Synapturanus danta*) in Peru in 2022,  
194 a new frog species in the Amazon forest [15], attracted considerable attention on social media and  
195 contributed to the efforts to protect the area where it lives (photo: Germán Chávez); (d) the largest  
196 ivory destruction event to date (in Kenya, 30 April 2016) incinerated a total of 105 tonnes of ivory  
197 with the aim to attract public attention and act as a poaching deterrent [10] (photo: Mwangi Kirubi).

198

### 199 **Competing interests**

200 The authors declare no competing interests.