Flagging the Flagship:
Valuing Experiences from Ancient Depths

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Abstract Marine turtles serve as flagships for diverse human activities, of which conservation programmes are especially notable. Often these conservation efforts transcend the immediate goals of marine turtle protection and biological conservation, with important achievements in the social arena. Citizen participation in conservation and other activities, leading to social inclusion and empowerment are most remarkable. At the same time, these reptiles have been important as cultural symbols, rallying devices, or marketing logos in ways that are unrelated or even contrary to biological conservation; indeed, some people even view the conservationists' flagships as symbols of problems and threats. Although the term has been in use since the mid-1980s to refer to the mobilising power of charismatic species, and there have been several attempts by conservation biologists to define and clarify the concept, 'flagship species' continues to be misunderstood and misused. Confusion between conservation and tourism flagships is especially common. The varying uses of marine turtle flagships leads to contradictory perceptions and expectations by different social groups, which need to be investigated. Despite their frequent lack of scientific design, projects employing marine turtle flagships merit academic attention: they are valuable case studies of folk management and provide a wealth of empirical information. Analyses of the motives, cultural values, and knowledge systems associated with the use of turtle flagships are required. Such studies must look not only at the people who are targets of flagships, but also at the practitioners, particularly ecologists and conservationists, who use and confuse the concept. Interdisciplinary approaches are essential, and it is necessary to recognise that flagships, like *nature* itself, are socially constructed, in varying ways by different social groups. Flagships provide a singular opportunity, and powerful tool, to draw disciplines and social groups together for collaboration, and for fostering research, biological conservation, and social development.

Lessons from the Accounts in this Special Issue

Positive Attributes of Projects Using Marine Turtle Flagships
Various projects that have employed marine turtles as flagship species are discussed in this Special Issue, and scores of others are not described herein.[1] The effects, direct and indirect, of these conservation activities have been impressive: establishment of protected areas for marine turtles and other marine wildlife, regulations for resource use, gear modifications, alternate fishing and other livelihood ventures, as well as models for community development and participation -- not to mention standards for commerce, legislation, and international relations. Yet, the interests behind and

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impacts of many of these endeavours transcend the projects themselves. Biological research and conservation initiatives have been greatly enhanced by the development of collaborative relations with coastal communities, the fishing industry, and other stakeholders. But, beyond the development and maintenance of impressive programmes such as TAMAR, with regional networks and multi-million dollar annual budgets, there have been even broader multiplier effects. Through collaborative and inter-institutional relations promulgated by marine turtle projects, government agencies, other non-government organisations (NGOs), and civil society as a whole have been exposed to more responsive and accountable organisational models and cultures. This process has been most direct where dedicated professionals have 'graduated from' these projects to go on to occupy key positions in other NGOs and government. As a consequence, the fundamental importance of community involvement, consultation, and partnerships has been driven home to other organisations and government agencies.

Of the various benefits, both direct and indirect, of marine turtle conservation projects, one in particular goes beyond the natural sciences completely. Many of these projects, thanks to the level of public attraction to the flagship, have promoted remarkable increases in citizen participation, and the involvement of the laity in the investigation and maintenance of environmental and resource standards that are important to them. The examples provided in this Special Issue -- *Projeto TAMAR* (Marcovaldi, Patiri, and Thomé 2005), *Karumbé* (Laporta and Miller 2005), *Grupo Tortuguero* (Delgado and Nichols 2005), the Nova Scotia Leatherback Turtle Working Group (NSLTWG) (Martin and James 2005), the Students Sea Turtle Conservation Network (SSTCN) and *Theeram Prakariti Samrakshana Samiti* (Shanker and Kutty 2005), and several activities in the Caribbean (Eckert and Hemphill 2005) -- show how marine turtle projects have promoted not only environmental protection, but also citizen participation and representation, as well as democratic and civic processes. The implications of these socio-political impacts could not be clearer than when this effect transcends the localised projects and affects international relations, such as treaties and the workings of powerful inter-governmental organisations (Frazier 2000a; 2002; Frazier and Bache 2002; Bache 2005; Bache and Frazier in press). No conservation biologist, no matter how insistent on the need for 'hard science', could deny the fundamental importance of citizen participation and its impacts on policy in meeting the challenges of environmental protection (see Steiner, Kimball and Scanlon 2003).

If TAMAR's impressive register of social and fiscal responsibilities seems untenable, or Karumbé's insistence on developing trust seems naïve, then the NSLTWG is not to be outdone, for this Canadian project calls for nothing less than altruism on the part of their collaborators. In exchange for information, recognition, and respect, Nova Scotia fishermen provide services that cost them time and effort, and run the risk social rejection by their peers (a common possibility in these projects). Likewise, there is remarkable idealism in *Grupo Tortuguero*, in the hope that they can somehow -- through citizen involvement -- transform a deeply embedded system of corruption and lawlessness. Indeed, if after a quarter of a century of dedicated work and collaboration with coastal communities, TAMAR's beach patrols are still plagued by egg pilfering of local staff -- people trained and hired specifically by the project to protect all eggs (Almeida and Mendes 2004), what are the chances of stopping

illegal hunting of marine turtles in the much less controlled, lawless expanses of Baja California? Equally implausible is the dogged dedication of SSTCN members, walking thousands of kilometres of soft, sandy beach each year in the everlasting hope of finding the odd nesting turtle, yet somehow maintaining undying participation from the public in Madras. In terms of classic examples of community development and empowerment, *Theeram*'s project in northern Kerala is difficult to exceed: a small, peripheral fishing community motivates, educates, and organises itself to the point of taking on mafias and the authorities -- and winning! Each of these projects, *Theeram*, SSTCN, *Grupo Tortuguero*, NSLTWG, Karumbé, and TAMAR, tests the dimensions of not just volunteerism, but also citizen participation in environmental protection and resource management. All told, these marine turtle conservation projects, as has been described for other conservation initiatives for these reptiles (Frazier 2000a), have considerable importance for understanding social impacts on environmental and developmental initiatives, particularly in areas such as individual and community motivation and mobilisation.

Conflict with Marine Turtle Flagships

On the other hand, conflict and strife are also clearly evident in several of the examples presented in this Special Issue. It is unsurprising that there are contradictory views on how marine turtle flagships are, or should be, perceived, for many situations of intense social conflict involving flagship species in general are well documented. The snail darter and spotted owl in the USA both, in their time, symbolised opposing images to contesting sectors of society: on the one hand they symbolised Mother Nature under attack by greedy entrepreneurs, supported by all-powerful corporations and corrupt officials; and on the other hand they were seen to represent the romantic, impractical, and anti-social demands of an irrelevant sector of society. In the spotted owl dispute, the intensity of discord reached the point of death threats (Yaffee 1994); and because of the complexities of the political manoeuvrings that took advantage of the conflict, some of the so-called 'conservation triumphs' are subject to debate (Proctor and Pincetl 1995). Many issues involving endangered species are extremely complicated, with opposing viewpoints on what is right or needed, and what is acceptable or tolerable; in some cases contradictory positions are held not just by people from different disciplines and backgrounds, but by different specialists in conservation biology (Stalcup 1996).

Conflicting interpretations and expectations arising from the same symbol, and resultant social conflict, are nothing new for marine turtle projects. In the case of Zakynthos Island, Greece, for example, conflict between 'ecologists' and 'poor farmers' began in the 1980s when there were attempts to limit locals from mining and constructing on turtle nesting beaches. On the one hand, the conservationists perceived marine turtles as a symbol of endangered wildlife and nature, needing protection from human disturbances, while local land owners, aspiring for income from a growing tourism industry, saw the same animals as symbolic of intruders who had interfered with, and harmed, their interests through restrictions on land use, income generation, socio-economic independence, and generally the creation of a bureaucratic situation antagonistic to their cultural values. The conflict became so intense that conservationists' lives were directly threatened, on repeated occasions (Theodossopoulos 1997). Likewise, the history of the shrimp fishery in the southern

USA beginning in the mid-1970s, and involving the critically endangered Kemp's ridley turtle, the development of turtle excluder devices (TEDs), and over a decade of 'TED wars', was a classic case of intense social conflict involving various sectors of society and their respective relations with marine turtle flagships. For conservationists, the turtles were the symbol of the pillage of common pool resources; for shrimpers, the same turtles symbolised the many woes that they faced in a declining fishery -- here also the controversy reached the point of death threats, and there have been diverse versions and justifications of different interest groups (Moberg and Dyer 1994; Weber *et al.* 1995; Margavio and Forsyth 1996; Frazier 2000b; Bache 2005).

Hence, the contradictory visions of the same turtle flagship that occur in the Pacific (Kinan and Dalzell 2005) could be considered to be relatively mild! Certainly, it is not difficult to understand the occurrence of disagreement between conservation activists and the fisheries sector when the topic of discussion is closing a fishery to save turtles. Escalating concern for the status of leatherback turtles, particularly in the Pacific, is manifested in a growing number of publications, including respected authors and prestigious journals (Spotila *et al.* 2000; Bell *et al.* 2003; Casale *et al.* 2003:156; Hays *et al.* 2003; Ferraroli *et al.* 2004; Kotas *et al.* 2004; Lewison, Freeman and Crowder 2004; Tröeng, Chacón, and Dick 2004). Promoted by global media campaigns (Ovetz 2002; Anonymous 2004; Reilly 2005; Reuters 2005), this concern has precipitated a variety of responses in diverse organisations to save these endangered turtles. This includes resolutions by international treaties (IAC 2004), intergovernmental meetings and proposals such as those produced by the United Nations Food and Agriculture Organisation (FAO 2004), and even proposals before the United Nations Law of the Sea Panel to ban fishing practices that kill marine turtles (Reilly 2005; Reuters 2005). That some NGOs will do all they can -- even making indefensible claims such as described by Kinan and Dalzell (2005) -- to influence public opinion is consistent with the general *modus operandi* of many of these organisations (Chapin 2004; Frazier 2004). That this conflicts with the interests and expectations of Pacific islanders in their desires to increase self-sufficiency and incomes as well as modernise -- through development of commercial fisheries -- is predictable. Moreover, the level of complexity and strife is increased further when fisheries development is led by powerful economic and political interests, linked to influential external Asian markets. Further contention derives from social pressures to sustain traditions of consumption and exchange when the resource (marine turtles) is deemed to be endangered and full protection is legislated by higher, outside authorities. There is enormous difficulty in regulating marine turtle exploitation in Micronesian territories such as Palau, with conflicting opinions about whether locally based schemes should take precedence over centrally controlled management programmes (Guilbeaux 2001). Recognising that these reptiles symbolise very different expectations to different sectors in this region will be fundamental for resolving the conflict.

The level of confrontation in Orissa, India (Shanker and Kutty 2005) is remarkable. At one level, in this predominantly Hindu society one might expect firm support for the protection of life, especially relatively harmless beings that represent an incarnation of one of the principal gods. Furthermore, when a 'logical evaluation' clearly shows that the management needs of artisanal fishermen and conservationists are complementary, particularly in regard to regulation of mechanised trawlers, it is

incongruous that small-scale fishers would band together with some of their principal adversaries. However, with the constant high-profile and confrontational nature of the turtle conservation campaigns, the flagship has been conceived as a symbol of interference, anti-fisheries initiatives, and the many woes that inflict a mismanaged industry. But the saga in Orissa does not stop there. Concern for marine turtles has not only resulted in attempts to regulate fisheries, but activities by the much-more powerful oil industry have also been restricted, and even stopped, because of protective measures for these reptiles; the issue has been hotly disputed for years, with turtle protection consistently figuring prominently in the debate (Nainan 2004a, 2004b, 2005a, 2005b, 2005c; Ganapathy 2005; Ranjan 2005). Likewise, protection of ridley turtles is also the rallying cry used by environmentalists to stop the development of a 346-million dollar proposed port facility at Dharma, Orissa (Gopal 2005).

There is no intention here of entering the fray, and pronouncing in favour of any of the various combatants; for, as in any conflict of this nature, every side is both right and wrong. What is fundamental is to understand that the same symbol can be perceived and responded to in vastly different ways. Put another way, different social groups will appropriate the symbolic value of a flagship for their own political interests, whether this be to promote biological conservation, cultural identity, better relations with other sectors of society, or to deter adversaries (Blount personal communication 19 May 2005). The marine turtle flagship can be effectively employed only when practitioners understand this.

Flagships for Conservation or Tourism?

A more subtle, but no less significant, form of conflict is the confusion between flagships for conservation and flagships for tourism.[2] This is evident when an organisation, such as the American Zoo and Aquarium Association (AZA), whose declared priorities are animal protection, not tourism, endorses projects singled out because of their 'potential as an ecotourism flagship species' (Lankard 2001:97), or when the internationally respected British Airways travel award is granted to 'a flagship for eco-friendly development' with questionable environmental benefits (Venizelos 2001:252).

The use of the marine turtle flagship to attract tourists -- and their money -- to hatcheries in Sri Lanka, despite management practices that are counterproductive to accepted conservation protocols and goals (Tisdell and Wilson 2005), has resulted in extended criticism for over a decade (Hewavisenthi 1993; Richardson 1996; TCP 2002; Tisdell and Wilson 2003; Amarasooriya 2005). The paradigm is identical to what has been described for game parks where management practices are distorted to cater to tourist demands for viewing charismatic large mammals (Goodwin and Leader-Williams 2000). In the case of turtle hatcheries in Sri Lanka, the lack of political will to remedy long-standing illegal, environmental malpractice has been trumped by the tsunami of 26 December 2004. Among the many victims of the ocean surge were coastal turtle hatcheries; and now that 'Nature has taken care of the problem', it is much easier for authorities to try to manage the situation. Recent guidelines and regulations for turtle hatcheries in Sri Lanka (Kapurusinghe personal communication 27 May 2005) attempt to put an end to the distortion caused by purely commercial ventures, catering to tourism.

Aside from the immediately visible effects of tourism, there are other, more

difficult, issues that need to be addressed through follow-up and long-term studies. For example, certain forms of economically 'successful' mass tourism to areas of scenic beauty, sometimes hailed as 'sustainable tourism', have been shown over time to present serious environmental risks (A.D. Smith 2004). Likewise, tourism that is ostensibly 'environmentally friendly' has been found over time to cause problems. For example, whale and dolphin watching has resulted in significant behavioural changes to the cetaceans, with an increase in activities that are not easily understood, but which are clearly related to communication problems caused by noise from watcher boats and behaviours to avoid the disturbances from tourists (Foote, Osborne, and Hoelzel 2004; Lusseau 2004). These effects were not evident at first and only emerged after follow-up studies, showing that although initially it was assumed that there was no conflict between conservation and tourism flagships, with careful investigation significant problems became evident.

Problems involving host communities are often more subtle, or occult, and troublesome (Campbell 1999). This is not to mention the colossal risks to health -- human and wildlife -- that are presented by burgeoning rates of international travel and tourism (M.E. Wilson 2002). While 'ecotourism' is meant to be socially responsible, and even to provide direct benefits to the host communities (Ceballos-Lascuráin 1996:13; Ross and Wall 1999; Scheyvens 1999), the fact of the matter is that socio-cultural issues are rarely evaluated (Brandon and Margoluis 1996). Indeed, ecotourism theory has often not been put into practice, giving rise to the need for clear guidelines (Ross and Wall 1999), as well as an 'anthropology of tourism' (V.L. Smith 1989) and much greater academic attention to this fast-increasing activity (Malek-Zadeh 1996).

Although there are no global figures for numbers and economic values of turtle tourism, one recent study has estimated that average annual revenue from this specialised type of tourism is more than 1.5 million US dollars (Tröeng and Drews, 2004). Given the fiscal importance of the global tourism industry that 'generates over 10% of the world's gross domestic product, and employs one in nine workers worldwide' (see discussions in Goodwin and Leader-Williams 2000:259 ff. and Venizelos 2001:253), conflicts that involve tourism flagships must be taken very seriously. Certainly, many marine turtle conservationists have expressed grave concern about the threats of tourism (Cosijn 1995; Godley and Broderick 1996; Schofield, Katselidis, and Hoff 2001; Venizelos 2001). In the end it must be understood that '[e]cotourism, under whatever definition, is an instigator of change' (Wall 1996:108).

Valuing Folk Management of Conservation Projects

Remarkably, in the majority of cases the use of the marine turtle flagship has not been scientifically planned or managed; although social integration and active collaboration with the social sciences were routinely not part of the original plan, the respective programmes have had to move decidedly in that direction in order to develop, if not survive. However, before these experiences are discredited or rejected as lacking substantive scientific value, it is important to recall how many -- if not most -- fisheries activities develop. Just as there is folk management of fisheries resources, devoid of conventional scientific constructs, methods, designs, and specialised fisheries scientists -- but acquiring considerable academic attention from specialists (Dyer and McGoodwin 1994), there is also folk management of conserva-

tion projects, community outreach, and other activities that, although lacking scientific design, warrant the attentions of anthropologists and other specialists in social studies. Gunnthorsdottir (2001:206), for example, suggests that there 'appears to be *folk wisdom* among environmentalist campaigners that pictures of attractive animals help generate support for their cause' (emphasis added). As with folk management of fisheries (management *not* founded on western science), some folk managed conservation and community development projects are effective, while others are not. The question is not the scientific merits of the project design, but how to understand what is working, what is not working, and why.

Various papers in this Special Issue return, again and again, to the fundamental importance of participation and cooperation by multiple stakeholders. Yet, these concepts are conceived and implemented in differing ways. What are the generalities to participation and cooperation? What basic issues in programme development and function are sensitive to details of place and time? Answers to these, and other, root questions should help to illuminate how the flagship species concept functions, and how best to employ it for management alternatives (Kellert 1980:102).

Scrutinising the Flagship Species Concept

Species of Special Conservation Concern

In the suite of species of special conservation concern, flagships species are the exception. Keystone, indicator, and umbrella species are selected because of assumptions about their biological and/or ecological characteristics, and how these qualities relate to certain goals of biological conservation, particularly maintaining protected areas and protecting biological diversity -- especially species categorised as under risk (Frazier 2005). In contrast, there need be no assumptions about the biological or ecological role of a flagship species -- it serves as a symbol, an icon, to attract public attention, or at least the attention of some sectors of society (Frazier 2005). A flagship species by definition serves a social role; it is a conceptual tool with which to mobilise interest and action.

If one can rally public support with a flagship species as an attractive symbol, and at the same time employ the selfsame organism as a keystone, indicator, and/or umbrella, then there should be far more impact:'more bang for the buck'. It is this approach, combining biological and ecological functions together with the sociocultural functions of the flagship, that results in much of the confusion about the concept: the combination is commonly promoted, but without explicitly stating that certain characteristics additional to those of flagships have been incorporated. Instead, it is left implicit that the respective species has acquired additional ecological qualities.

On the other hand, attractiveness and value as a symbol (the flagship notion) are not infrequently infused into the application of the other three expressions used for species of special conservation concern -- that are, in theory, based solely on biological/ecological characteristics. This problem has been described for indicator species, in cases where the general public and/or government officials focus on the condition of a single species (as a flagship), and not on what that species is supposed to be revealing about some environmental condition(s): the surrogate value(s) of

the indicator. In some cases, laws establish certain species as indicators, not necessarily because they are effective or even appropriate in this role, but rather because for some reason government agents have been specifically attracted to their situation (Landres, Verner, and Thomas 1988). As Pearson (1994) explained, selections of this type can be divisive, with different sectors of society taking highly polarised positions, when in fact both government and the public should be most concerned about what index values are being revealed -- not the condition of the attractive species.

Given these varying cases of conceptual intersection/overlap, it is surprising that expressions like 'flagship-keystone', 'flagship-indicator', and 'flagship-umbrella'(or perhaps 'keystone-flagship', 'indicator-flagship', and 'umbrella-flagship') are not it use. The lack of these compound expressions indicates that there continues to be confusion by conservationists and ecologists in distinguishing the primary characters of each of the terms.

Discussions about species of special conservation concern consistently excuse inaccuracies in the terms and their application because of unpredictability, uncertainty, imperfect knowledge, and the dynamic nature of living organisms and environmental systems. Yet, while many authors have pleaded for scientific objectivity, it is remarkable that in the end a majority of the discussions about species of special conservation concern have rested more on suppositions and philosophical arguments than on the analysis of data and the testing of hypotheses.

Whose Flagship?

Beyond the terminological confusion is a matter that many natural scientists would prefer not to discuss. It is important to consider more carefully the purported separation between 'rigorous biological/ecological criteria' of keystone, indicator and umbrella species on the one hand and 'soft socio-cultural qualities' that typify flagship species on the other. Most of the papers evaluating species of special conservation concern are written by natural scientists -- for natural scientists; and expectedly, the authors use those terms and concepts with which they are most familiar: biological and ecological attributes. Yet, beneath the academic lustre of objectivity, authors routinely strive to construct convincing cases to prove that their particular study animal is scientifically important, and thus attractive -- or intellectually charismatic -- because of its biological/ecological characteristics. If the writer's argument is accepted, they will be better placed to complete for financial, social, and political support.

A careful reading of publications in conservation biology, with background knowledge of the main interests and specialisation of the respective authors, shows that most scientists 'root for their favourite animal'. It is rare for an author to investigate the role of a species being studied, and then openly admit that it does not function efficiently, as Berger (1997) did for black rhinos, which were purported to serve as umbrella species. Specialists on invertebrates maintain that their tiny study subjects 'run the world' (E.O. Wilson 1987), or affirm that the group of animals that they investigate is the best global indicator for biodiveristy (Pearson and Cassola 1992; Pearson 1994); ethnobotanists extol remarkable plant species (Iltis 1988; Etkin 1994; Meilleur 1994); primatologists support the critical importance of their study subjects (Mittermeier 1986, 1988); and of course marine turtle specialists promote their favourite marine reptile (Frazier 1999:15; in press). There is nothing unusual

about this, but it is important to appreciate that processes of selection are not based uniquely on purely objective criteria, as is often indicated.

In this light, a large and varied group of specialists in the natural sciences have recently selected several of the most popular and attractive of marine wildlife species (dolphins, manatees, marine birds, marine turtles, and sea otters) as 'sentinels for ocean health' (Aguirre *et al.* 2002:83; Aguirre and Lutz 2004; Aguirre and Tabor 2004; Bonde, Aguirre, and Powell 2004; Burger and Gochfeld 2004; Jessup *et al.* 2004; Tabor and Aguirre 2004; Wells *et al.* 2004; Wilcox and Aguirre 2004). Previously, the term 'sentinel species' had been defined as a class of indicator species, a '*sensitive* species *introduced* to *atypical* conditions as *early warning* devices' (Spellerberg 1991:97; 1992:52; emphasis added). The classic example is the proverbial canary, introduced into the mine as a sensitive, early warning for poisonous gasses. It is debatable if any of the above mentioned marine wildlife species, proposed as 'sentinels for ocean health', are under consideration for having been *introduced* into atypical conditions: instead, they are native to the areas where they occur, but rather, the conditions where they live have changed. More important, however, are questions of how *sensitive* these species will be, and whether they can provide surrogate indices of 'ocean health' as *early warnings*. Numerous careful discussions, some of which date back almost half a century, explain the biological and ecological criteria required for selecting effective indicator species (Odum 1959:143; Thomas 1972; Wilcox 1984:641; Landres, Verner, and Thomas 1988; Noss 1990).[3] Species such as those named above, with complex life cycles, that migrate thousands of kilometres, and with poorly known pathologies and diseases, have characteristics opposite to those of sentinels, or indicator species in general. What would seem to be more appropriate as marine sentinel species would be invertebrates with relatively short, simple life cycles and life histories -- albeit inconspicuous and unloved. However, a clam buried in the mud, or a grotesque worm, would have none of the attractions for the general public that dolphins, sea otters, manatees, sea birds, or marine turtles are well known to have.

Few of us are innocent of this sort of over-enthusiasm for our favourite study animal: this author once proposed that marine turtles are 'index species for international cooperation' (Frazier 1981). In some cases the attraction for marine turtles is so great that conservationists' enthusiasm has been likened to some sort of religious fervour, but lacking the basic activities for effective conservation (Frazier 1994, 2003).

It is nonetheless notable that despite pioneering and seminal work with marine organisms and environments, there has been relatively little attention paid to marine species of special conservation concern. The vast majority of discussions about keystone, indicator, umbrella, and flagship species are concentrated on terrestrial animals and environments. Yet, the first example, and some of the clearest cases, of keystone species come from coastal marine environments. In addition to Elton's (1927:129) initial descriptions, and Paine's classic studies on inter-tidal faunas where a single species of predatory starfish was shown to determine the structure of communities (1966, 1969), kelp forests in Alaska have been shown to be dependent on adequate levels of herbivore predation (sea urchins particularly) maintained by sea otters (Estes and Duggins 1995), and sea urchins are also critical to the ecology of tropical coral reefs (McClanahan and Kaunda-Arara 1996). Marine organisms and

environments also provide clear examples of indicator, umbrella, and flagship species (Zacharias and Roff 2001).

In the end, the flagship species concept is about what motivates and inspires people. This was made clear with one of the most renowned of all flagship species; Schaller *et al.* (1985:xiii) explained that '[t]here are two giant pandas, the one that exists in our mind and the one that lives in its wilderness home.' A number of social investigations have found that superficial characteristics of a species are far more important for attracting the public than are characteristics such as 'ecological value and taxonomic uniqueness' (Gunnthorsdottir 2001:211; see also Kellert 1980 and others). However, as argued above, aspects of motivation and inspiration are not restricted to just flagship species. Despite the need for rigorous biological and ecological information for identifying keystone, indicator, and umbrella species, there is *always* an element of social and political consideration in the selection and promotion of these categories. It would be naïve to deny this, and irresponsible to act as if any of these categories are based solely and exclusively on objective, scientific criteria, with no social considerations.

Unfurling the Flagship Concept

As is common with many discussions about biological conservation, natural scientists have routinely treated issues related to flagship species as ecological problems, relevant principally to biologists and ecologists. In general, they have been reticent to acknowledge the central role of the social sciences in these issues, much less involve them. Despite its semantic bias, biological conservation is essentially a socio-political issue (Bennett 1990; Moran 1990:24; Proctor and Pincetl 1996; Marcucci 2000); one hopes that under ideal circumstances, policy makers will take into account the best available biological and ecological information. Yet, it is alarmingly common for policy decisions to be taken without consideration for scientific information -- even if there is consensus by specialists on its merits (Pulliam 1998; see also Bache 2005). It is in this arena that the flagship species, despite any lack of biological or ecological qualities, can serve a unique role: to attract the attention and serve as a source of motivation and orientation for policy makers and other sectors of society.

In this light, it is fundamental to understand the attitudes that different people in different sectors of different societies have regarding wildlife and 'nature'. For all the research that has been done on, say, marine turtle migration or nesting ecology, there is a remarkable paucity of systematic information on what people think about the very animals that the conservationists are trying to save: How and why are people attracted (or repelled) to marine turtles? What motivates them to do what they do? What are their expectations regarding how people and these reptiles should interact?

There has been a variety of studies on human attitudes toward wildlife, principally in the US, but also in Germany, Japan and the UK. These show that attitudes and values may differ not only between countries and societies, but also within societies; different age groups, educational levels, ethnic backgrounds, genders, and other socio-cultural factors are related to people's attitudes toward wildlife species (Kellert 1980; 1984; 1993; 1996; Kellert and Berry 1979, 1980a, 1980b, 1985; Kellert and Westervelt 1981, 1983; Westervelt and Llewellyn 1985; Plous 1993; DeKay and McClelland 1996; Goodwin and Leader-Williams 2000; Gunnthorsdottir 2001;

Kahn and Kellert 2002). However, despite their number and variety, most of these studies are focused on mammals and birds, and provide virtually nothing specific to marine turtles. Recent exceptions are the results of research in Australia that specifically addresses reptiles, including marine turtles (Tisdell, Wilson, and Swarna Nantha 2004, in press a, in press b). The authors concluded that 'likeability' and support for survival were closely related, and it was thought that public opinions were based on both ecological importance and moral/ethical considerations; degree of endangerment also seemed to influence people's choices (see also Kellert 1980:100; Gunnthorsdottir 2001). This study showed that while the hawksbill turtle was relatively poorly known, public support for the species was disproportionately high. These findings are decidedly relevant to the flagship concept, and consistent with the contention that the level of biological and ecological information is not a requirement for an effective flagship.

What is clearly needed is more research on what motivates people in relation to marine turtles. The study of conservation volunteers in Tortuguero, Costa Rica (Campbell and Smith 2005) is not only a contribution to the literature on volunteerism, but important for understanding what makes flagship species attractive. While human motivations are obviously complex, and it was not possible to isolate the attractiveness of marine turtles from other potential motivators in this study, Campbell and Smith (2005) showed clearly that the most common reason for volunteering given by interviewees was to be able to work with the turtles.

Not only is there a paucity of systematic information on public attitudes toward wildlife -- particularly marine turtles -- there is considerable diversity in the research methods used. For example, initial work in the US, followed by research in Germany and Japan, organised responses to questions into nine broad value categories: aesthetic, doministic, ecologistic-scientific, humanistic, moralistic, naturalistic, negativistic, symbolic, and utilitarian (Kellert 1980, 1984; 1993; 1996; Kellert and Berry 1979, 1980a, 1980b, 1985; Kellert and Westervelt 1981, 1983; Kahn and Kellert 2002). All categories are clearly relevant to the values that society attributes to wildlife -- that is, the basis of the flagship species concept -- but the results are impossible to quantify rigorously, and subject to myriad variables. Studies in Australia focused on the 'willingness to pay' concept in relation to a selection of five reptiles (Tisdell, Wilson, and Swarna Nantha in press a); in this case, the quantifiable measure of value was founded on contemporary economic practice -- monetary value. Work in Tortuguero was based on semi-structured interviews and exit surveys (Campbell and Smith 2005), which rely on the usual 'soft' measures of social science. This is not to mention many other differences between investigations, such as sampling method, sample size, and so on. DeKay and McClelland (1996:80) concluded that 'species preferences are constructed within the context of the information provided [by the investigator] and that information regarding value attributed may have profound and predictable effects on the expression of preferences.' Hence, not only is more basic information needed on what qualities attract people to certain species, but comparisons across the few studies there are must be done with great caution.

Several marine turtle projects have recognised the need to address socio-cultural issues specifically: *Projeto TAMAR* hires specialists in media and marketing (Marcovaldi, Patiri, and Thomé 2005); the Karumbé project has included community development as a priority area for research and conservation (Laporta and Miller

2005); *Grupo Tortuguero* includes a specialist in community-based social marketing (CBSM) (Delgado and Nichols 2005); the Nova Scotia Leatherback Turtle Working Group (NSLTWG) includes a specialist in education, outreach, and communications (Martin and James 2005); and *Theeram Prakariti Samrakshana Samiti* has enjoyed the extended involvement of specialists in community development (Shanker and Kutty 2005). Hence, future reports from these programmes should yield greater details, analysis, and synthesis of socio-cultural aspects, and assessments of the functioning of the marine turtle flagship. They will be instrumental in constructing the interdisciplinary compass for navigating these conceptual oceans.

Conclusions and Discussion

Earlier I argued that folk management of conservation projects has both practical and academic value. It is not illogical to study flagship projects that have been designed and executed *without* a foundation in social sciences: indeed, this problem is the very domain of these academic disciplines. As Machado, Lourenço, and Silva (2000) explain, scientific disciplines can be conceived of as epistological triangles, with three distinct types of research at each vertex: factual, theoretical, and conceptual. The challenge is integrating these approaches and making sure that none is absent, but that none dominates. The conservation projects described in this Special Issue present a wealth of empirical material, and this provides a beginning: what is needed now is conceptually organised and theoretically relevant research on the flagship species concept. This will require explorations of cultural values, knowledge systems, and social processes, as well as economic considerations.

A basic problem is terminology. As with any apparently simple expression that is coined and adopted into discourses, scientific or otherwise, 'flagship species' has enjoyed considerable popularity, but not without the cost of debate and confusion. Like so many terms in common usage, 'flagship species' is not well-defined, but that does not necessarily negate its usefulness. In a similar light, when the term 'monitor', and its many derivatives, first became fashionable in the literature and discussions on biological conservation, it was used without clear definition, and resulted in confusion (Fitter 1986:66); yet, today it is commonly used and accepted. Other oft-used terms such as 'culture', 'species', and 'science' have been -- and will continue to be -- debated intensely because there are no universally accepted definitions, but they are still employed in useful deliberations (M.E. Smith 1996:213 fn. 2).

Based on the discussions in this Special Issue, the simplest definition might be: '*flagship species*' *is a species that attracts the attention of the public, motivating people to take certain actions or adopt certain attitudes*. This occurs independently of the level of knowledge about the species or its environment, and can involve specific sectors of different societies, in a variety of perceptions and actions. Flagships may represent various interest groups, simultaneously, or separately, in different ways: for example, flagships for tourism, cultural identity, disease prevention, or marketing, as well as for biological conservation. In the context of marine turtles, the most common use of flagship species is for conservation and tourism, although cultural identity and revitalisation are no less relevant, and certainly the symbol is widely used for commercial marketing.

Beyond the issue of terminology, a fundamental question for numerous disciplines is 'what drives and directs humans to do what they do at any stage of [social] complexity and at all scales of impact?'; as Gragson and Blount (1999:xiii) explain: '[t]hese activities are guided by knowledge, beliefs, and values the agents share with other individuals they participate with in these activities'. Hence, in order to comprehend the ethnoecology of a population one needs to understand knowledge systems, and how they evolve (Gragson and Blount 1999; Stoffle, Toupal, and Zedeño 2003).

Understanding the 'ethnoecology of the flagship species concept' will require a detailed understanding of the knowledge systems of the people who employ the notion. Just as conservation biologists need to cede academic space to specialists in other disciplines -- particularly the social sciences, social scientists need to apply their skills to more than questions of the ethnoecology of indigenous or rural groups. The knowledge systems, or 'science' of diverse sectors of modern, even urban, societies warrant investigation (Nader 1996). Various anthropologists (Bennett 1990; Gragson and Blount 1999:xiii) have expressed concern for the low level of engagement by anthropologists and other social scientists in ecological and environmental research; one might add that there is a further need to investigate human ecological issues in more than indigenous and rural settings. Indeed, there will be no other way to fully understand the flagship function than to evaluate attitudes, knowledge systems, and motivations in both the people who are in constant contact with the animals and their environments and also those who impact policies regarding these subjects of biological conservation and environmental protection (Frazier 2004).

Another issue of tremendous importance and complexity was raised in this Special Issue by Shanker and Kutty's (2005) paper. They suggest that some actions under the mantle of biological conservation -- namely, when using marine turtles as flagship species -- may in fact be more correctly labelled as 'animal liberation'; and they caution against mixing ethics and moral issues with science and the hard facts of ecology. I beg to differ. If biological conservation were a special discipline of biology or ecology, their position would present less of a problem. Indeed, complex and profound questions about ethics and scientists are vigorously debated, and include a diversity of arguments that range from the eternally grey area of authorship, publications and compliance with professional responsibilities (Beardsley 2005; Clapham 2005; Leimu and Koricheva 2005), to more black and white questions of misbehaviour (Martinson, Anderson, and de Vries 2005). However, if one accepts that, despite its name, biological conservation is a socio-political activity -- and that *nature* is a social construction (Proctor and Pincetl 1996; Marcucci 2000; see also Meilleur 1994) -- then stripping ethics, social values, and morality from discussions about conservation seems totally inappropriate. The number of times, and diversity of ways, that conservationists have engaged in arguments outside the confines of the sciences is remarkable. Kellert (1984) argued that in addition to utilitarian incentives, there are strong ethical, aesthetic, and spiritual reasons for private citizens to conserve wildlife. Repeatedly, issues of ethics, religion, duty, and human values are milled together with the 'scientific' arguments for the importance of biological diversity and need for biological conservation (see for example, Taylor 1986; Sessions 1995; Primack 2002). Of particular relevance to the question of marine turtles as flagship species are studies of public attitudes carried out in Australia where evaluations of public support for Australian reptiles, including hawksbill turtles, indicated that an important con-

sideration is the ethical reasoning that species, no matter how disliked, have a 'right to exist' (Tisdell, Wilson, and Swarna Nantha in press a). Likewise, a high proportion of turtle volunteers in Tortuguero were not only attracted to these marine reptiles, but they also were motivated by 'intrinsic', or altruistic concerns (Campbell and Smith 2005). Indeed, how many turtle conservation projects function thanks to *altruistic* contributions from their collaborators (see Martin and James 2005)?

While this logic does not lend itself easily to standard scientific testing, it does expose the complex socio-cultural issues that are inherent in the flagship species concept. Even so, there are those who would argue that many initiatives in conservation biology are at the margins, or even outside, academia; as such, supporting the creation and strengthening of flagships could be labelled as advocacy, and thus could be viewed as having no place in scholarly pursuits (Milton 1993; Campbell 2005). Similar debates have occurred in relation to human rights, and various anthropologists have felt the need to respond through academic debate, showing that in fact the scholar has the right -- and the responsibility -- to also be an activist (Nagengast and Vélez-Ibáñez 2004). The parallel with biological conservation and environmental protection is obvious, particularly when inspirational symbols such as flagships are a significant part of the discussion.

In this light it is essential to evaluate the full implications of the turtle conservation activities described in this volume. In addition to their initial responsibility to conserve sea turtles and their habitats, many of these conservation programmes have assumed clear social and political responsibilities, not only with the communities in which they work, but also with the general public, as well as governmental and non-governmental organisations, nationally and internationally. Regardless of whether this concept has been clearly articulated by the practitioners, or assimilated as part of the folk management process, there are intimate links between community-based conservation, social inclusion, and community empowerment, with enhanced support and success in meeting conservation objectives on the one hand, and clear involvement -- with manifest responsibilities -- in social, political, and economic processes on the other. Hence, ethics and morality are central issues in these conservation projects.

Recommendations

Flagship species are commonly employed to further objectives of conservation biology. However, like any tool, the flagship concept is not a panacea; there are clear cases when the attractive value of marine turtles can result in conflicts between different sectors of society, and even produce results counterproductive to those that were intended. Because no one group has exclusive rights to the symbol, and there may be contradictory views of its relevance, practitioners who wish to use the flagship as a motivating symbol must have clarity about who they are trying to attract and inspire, with what message, and for what end result. When different groups employ the same symbol for divergent motives, consultation and conciliation may be needed; but it is essential that each group understand that it does not have exclusive rights to the symbol.

Conservationists need to appreciate that the true key to understanding the concept and function of flagship species is not in illuminating the ecological role of the

organism, delving deeper into its mysterious life cycle, or filling the gaping chasms in its biology: rather, the crux is in understanding how and why people interact with the species -- what attracts them? Why? What are the cultural and other social constructs that hold the flag aloft? In this light, it is clear that the issue can only be understood within the context of the social sciences. Research on the development and function of human knowledge systems, and particularly attitudes toward wildlife will provide the tools with which to explore, understand, and explain how and why flagships work.

While the term 'flagship species' may not be in the lexicon of most social scientists, it is clear that the underlying foundations of the concept are in the domain of these disciplines: cultural valuation, knowledge systems, symbolism, and so on. Although they may never have employed the term 'flagship', various authors have wrestled with the questions of why certain animals have much greater symbolic value than others and why different societies respond to different animals in different ways (Killingsworth and Palmer 1992; Einarsson 1993; Richard 1993). Hence, an important body of empirical and theoretical knowledge that is directly relevant to the flagship concept already exists; it only needs to be integrated into the context of the flagship species question.

To understand what species and roles would be most effective as flagships, what makes flagships work, how to make the best use of pre-existing symbols and how to strengthen the use of flagships, there is a basic need to understand how different parts of society (different age groups, educational levels, ethnic backgrounds, genders and other socio-cultural factors) react to different species, environmental, and social issues. Multi-disciplinary research, for example on the ways that children interact with animals (Kahn and Kellert 2002) is essential for understanding how flagships develop in certain societies, and how they function. However, as mentioned above, methodological differences in such work need to be carefully considered when comparing across studies.

To address these needs effectively, conservation work on marine turtles or any other species must include socio-cultural considerations as major components of their projects, rather than as add-ons and side issues. Appropriate disciplinary specialists must be integrated into the teams, to provide the professional leadership and counsel required to understand and adequately respond to socio-cultural aspects. This is not to deny that collaborative work in ecology may provide few academic advantages (Leimu and Koricheva 2005), nor to ignore that there are serious obstacles to conducting collaborative research between different disciplines (Campbell 2005), But, it is only through an effective integration of disciplines that the concept of marine turtle flagship species can be better understood by, and therefore more useful for, scientists, activists, policy-makers, and the general public who wish to enhance the relationship between people and the sea.

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Notes

[1] It is important to emphasize that the studies presented in this Special Issue represent a very small sample; some excellent examples of other conservation projects that employ the marine turtle flagship, and have clear importance to community development by purposefully including education, health, sanitation, art, outreach, alternate livelihoods, or other forms of community empowerment and participation include projects in: Albania (Haxhiu 2002); western Africa (Dossou-Bodjrenou *et al.* 2003; Formia *et al.* 2003; Doussou Bodjrenou, Moutcho, and Sagbo 2005); northern Australia, many initiatives with aboriginal peoples (Kennett *et al.* 1998; 2004; Kennett, Munugurritj, and Yunupingu 2004; Kennett and Munugurritj 2005); Bangladesh (Paiker and Uddin 2002; Rahman and Kuri 2005); Colombia (Madaune 2000, 2002, 2003; Amorocho 2002; Suárez 2002; Vásquez Mendoza, Marrugo Deluque, and Amorocho Llanos 2003); Costa Rica's Caribbean (Chacón 1994, 2000) and Pacific coasts (Lopez *et al.* 2003; Dougan, Crossland, and Arauz 2005; Zabriskie *et al.* 2005); Egypt (Nada 2003; 2005); Greece (Panagopoulou, Margaritoulis, and Dimopoulous 2005); Grenada (Lloyd, King, and Shirley 2003); Guatemala (Katz and Barrios Ambrosy 2005); Fiji Islands (Rupeni *et al.* 2005); Indonesia (Mustika, Adnyana, and Putra 2005); Kenya, namely Kenya Sea Turtle Conservation Committee (KESCOM) (Wamukoya and Haller 1995; Wamukoya, Mbendo, and Kaloki 1998; Church and Palin 2004; Okemwa, Nzuki, and Mueni 2004; Church 2005); Malaysia (Chan and Liew 2002); Mexico, various initiatives (Villa Dirado *et al.* 2000; Jacobo *et al.* 2002; Legaria and Lifshitz 2005); Mozambique (Magane and João 2003); Philippines, especially the Turtle Islands (Cola 1998; Cruz 2000, 2002; Palma, Romero, and Trono 2002; Salao 2005); Puerto Rico (Carrión Colón and Pardón Santiago 2002); Solomon Islands (Leary and Orr 1998); Sri Lanka, Turtle Conservation Project (TCP) (Richardson 1994; Kapurusinghe and Richardson 1998; Kapurusinghe 2000; 2003; TCP 2002); Tanzania (Muir 2005a; 2005b); Trinidad (Sammy and Tambiah 2003); US Virgin Islands (Mackay, Lombard, and Harold 2005); and Venezuela (Artega *et al.* 2003; Castellano Gil, Barrios-Garrido, and Salom 2003; Guada *et al.* 2003), not to mention diverse activities with communities in industrialised societies such as Italy (Freggi *et al.* 2003), the UK (Ranger and Richardson 2003) and the US (Bennett and Sisson 2000; Lewis, Summers, and Sanders 2000; Tambiah and Hoyle 2000; N. Smith *et al.* 2002; Natoli, Natoli, and Tambiah 2003). In an ideal world, descriptions and evaluations, of each of these, and other related, projects would have been included, at least in a synthesis, in this publication! Hopefully, this partial list, with references, will promote more interest by social scientists in this global phenomenon.

[2] In addition to the term 'flagship species' being used in both conservation and tourism, there are other cases of terminological overlap between the two sectors, such as the expression 'target species' (Wilcox 1984; Kremen 1994; Goodwin and Leader-Williams 2000: 263).

[3] Spellerberg (1991:93 ff.) provides a thoughtful discussion on various types of indicator species, and makes several fundamental points. Of five recommended characteristics for indicator species, the first three are: 1) narrow tolerance, or high sensitivity, to environmental variables, 2) sedentary or limited dispersal, and 3) easy to sample, and thus presumably common. Of the many examples that he gives, the vast majority are plants, and remarkably few are vertebrates. He explains that without baseline research, there can be no reliable monitoring of trends in environmental pollutants. Several disadvantages of biological indicators include environmental variability (particularly abiotic) that may mask or alter the effects of the variables being investigated; variability in age, size, sex, stage in sexual cycle, growth, diet, body lipids, behaviour and so on, that affect the rate of uptake of a pollutant, or response to the measured variable; as well as synergetic effects between different environmental perturbations. Hence, indicator species must be very carefully selected on the basis of their ability to respond to the environmental perturbations under investigation. Commonly, '[m]achines may be more reliable than biological organisms and it has to be admitted that care has to be taken when it comes to interpreting the physiology, behaviour or ecology of biological indicators. Cause and effect relations are never easy to confirm without good research.' (Spellerberg 1991: 109). See also Zacharias and Roff (2001: 60 ff.) for further discussion on specific disadvantages of using marine indicator species, including the dynamic nature of marine environments, in space and time, and the challenges of deciphering information from species that disperse and migrate over vast areas.

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