IP 12: LOCAL COMMUNITIES’ ATTITUDES TOWARD CROCODILES AND HUMAN-CROCODILE CONFLICTS IN SARAWAK

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ABSTRACT

One of the biggest challenges faced by wildlife conservation managers is to garner and maintain stakeholders’ support toward conservation policies and measures (Barlow et al., 2010; Brukskotter & Shelby, 2010). In Sarawak, the recent increase in the number of crocodile attacks on people has been associated with the recovery of the estuarine crocodile (Crocodylus prorsus) populations. Crocodile related problems including attacks on human, domesticated animals and livestock are now considered as one of the most pressing conservation issues that require both short and long-term effective conflict resolution measures. From 1997 to May 2014, eighty-nine people were attacked by crocodiles in Sarawak. Out of this figure, thirty-eight resulted in fatalities. In Seblak, an area which is considered as a ‘hotspot area’ eight people have been killed by crocodiles since 1989. Attack on human especially when it occurs at an alarming regularity and involves major physical injury, and loss of people’s life, is likely to trigger public outcries and antagonistic attitudes towards crocodiles.

1.0 INTRODUCTION

One of the biggest challenges faced by wildlife conservation managers is to garner and maintain stakeholders’ support toward conservation policies and measures (Barlow et al., 2010; Brukskotter & Shelby, 2010). In Sarawak, the recent increase in the number of crocodile attacks on people has been associated with the recovery of the estuarine crocodile (Crocodylus prorsus) populations. Crocodile related problems including attacks on human, domesticated animals and livestock are now considered as one of the most pressing conservation issues that require both short and long-term effective conflict resolution measures. The recovery of the Sarawak estuarine crocodile from near its extinction in the mid 1980s (Cox & Gombek, 1985), and its subsequent listing under Appendix I, CITES and protection under State of Sarawak Wild Life Protection Ordinance 1998 have been cited as an endangered species success story.

“Sabah and Sarawak should be proud today as crocodiles in the wild have recovered in the two states. However, this has created a new set of problems i.e. the increase in human-crocodile conflict. The challenge now is how we are going to sustain what we have succeeded to protect as now we have a new problem to address”. (Dr. Graham Webb 2010).

From 1997 to May 2014, eighty-nine people were attacked by crocodiles in Sarawak. Out of this figure, thirty-eight resulted in fatalities. In Seblak, an area which is considered as a ‘hotspot area’ eight people have been killed by crocodiles since 1989. Attack on human especially when it occurs at an alarming regularity and involves major physical injury, and loss of people’s life, is likely to trigger public outcries and antagonistic attitudes towards crocodiles. Unfortunately, there has been no in-depth study conducted to examine the stakeholders’ attitudes especially those who are exposed to the danger associated with crocodiles at any point prior and during the course of the population recovery. Such study is essential as it can provide valuable insights on the level of public support and/or opposition toward the ongoing and proposed management measures to sustain the crocodile populations.

Growing public concerns especially among the peoples who live alongside this widely perceived life-threatening species has prompted the State Government of Sarawak to formulate both short and long-term measures aiming at reducing human-crocodile conflicts and easing human-crocodile coexistence. Among the on-going and proposed crocodile population management and conservation measures in Sarawak include the establishment of ‘crocodile free zones’ in densely populated areas, creation of crocodile sanctuaries, down listing of Sarawak’s estuarine crocodiles from CITES Appendix I29 to Appendix II30, conducting a holistic state-wide crocodile

28 Statement made by Dr. Graham Webb, Chairman of Crocodile Specialist Group in his keynote address at the Human- Crocodile Conflict Workshop in Kota Kinabalu, 23-35 June 2010.

29 Appendix I contains species that are not necessarily now threatened with extinction but may so unless trade is closely controlled.
survey covering all the major rivers to determine the present status of crocodile populations and extent of human-crocodile conflicts, intensifying public awareness and education programmes on crocodiles, and formulation of crocodile strategic management plan.

Understanding people’s attitude towards crocodiles is essential because it can help to identify factors that influence behaviour toward these species. Persons who possess positive attitudes regarding a species are likely to be more tolerable toward its population, support conservation measures, and less likely to have harmful behaviour toward the species.

This paper discusses the factors which can influence the local communities’ perceptions of and attitudes toward the recovery of crocodile populations in Sarawak based on the preliminary findings of the socio-economic component of the recently completed holistic crocodile study for Sarawak. It seeks to present a brief account on the local peoples’ beliefs, perceptions and toward crocodiles and crocodile conservation in Sarawak, in the context of local peoples’ cultural and historic relationships with crocodiles, local knowledge about crocodiles and recent trends of crocodile population and human-crocodile conflicts.

Discussion of the topic can provide valuable insights on the framework for developing baseline information that can be used to develop and evaluate the success of education and public awareness programmes on the species.

**Figure 1:** Incidence of crocodile attacks on human in Sarawak (1990-June 2014).

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30 Appendix II lists species (flora & fauna) that are the most endangered. They are threatened with extinction and CITES prohibits international trade in specimens of these species.

31 The other components of the study are; crocodile population surveys, aquatic food resources & water quality, vegetation, terrestrial food resources.
2.0 CULTURAL AND HISTORIC RELATIONSHIPS BETWEEN CROCODILES AND HUMAN

Almost eight decades ago a renowned American museum collector, Henry C. Raven wrote:

“The natives of Borneo fear crocodiles more than they fear other animals”.

(Raven 1946)

Like most traditional societies in Southeast Asia and in rural communities of the developing countries, the indigenous peoples of Sarawak had developed specific rules or taboos that revered crocodiles and regulated human relationships with the potentially deadly species (Hose & MacDougall 1901). For example, many people in Sarawak especially the natives do not kill or eat crocodile meat. Doing so is considered an unwise provocation that would anger the crocodiles and drive them to take revenge on the person who has committed the act. Majority of the respondents interviewed during this study claimed that crocodiles do not arbitrarily attack people, and would only do so selectively as a form of punishment against individuals and their family members, who had breached the social order and taboos. In this respect, crocodile attacks on human were considered the victim’s own fault. Therefore, it is baseless to be afraid of crocodiles as long as the people do not transgress the taboos or conduct an act which can be construed as harming, disturbing or provoking the crocodiles. Taboos and traditional laws are important factors that have contributed positively toward realizing wildlife conservation goals and objectives (Gadil et al. 1993, Horowitz 1998, Berkes et al. 2000, Colding & Folke 2001, Berkes 2003, Becker & Ghimire 2003, Moller et al. 2004, Peterson et al. 2007, van der Ploeg et al. 2011).

Many of the older generations of the Iban community still believe that crocodiles hold a prominent position and can wield immense power in their spiritual world. Some of them still hold to the old beliefs that there is a ‘special pact’ made between their ancestors and the crocodiles, and it is a strict taboo for either party to breach the ‘agreement’. Crocodiles play various roles in the Iban traditional way of life including helping in crop production and protection against their potential enemies. In the older days, it was quite common to see, Iban farmers displayed crocodile effigies in their paddy fields to keep pests and diseases away from their crops. Only by strictly observing these ‘regulations’ and taboos can human continue to share common landscapes and resources.

Because crocodiles are both revered and most feared, the Iban must show respect to the crocodiles. An authority Iban culture, Dato Seri Edmund Langgu anak Saga related an incidence whereby the villagers had suffered a ‘curse’ and more retaliatory attacks by the crocodiles after they hunted down and killed a crocodile following a fatal attack upon one of the longhouse residents:

“Many years ago people of a longhouse in Miri captured and killed a huge crocodile after it attacked one of the villagers. They hung the skull of the croc and made fun of it. After that there were many attacks on the people of that longhouse which only stopped after the village head performed ‘miring’ to appease the crocodiles”.

Most natives of Sarawak still believe in totemism, a system of old belief in which each human is thought to have a spiritual connection or a kinship with another physical being e.g. animal (totem). People generally view the totem as a companion, relative, protector, progenitor, or helper, ascribe to its superhuman powers and abilities, and offer it some combination of respect, veneration, awe, and fear. Most cultures use special names (e.g. the Iban refers to crocodiles as aki to refer to crocodiles) to the totem. There is usually a taboo against killing, eating, or even touching the totem.

32Quoted in The Borneo Post dated 21 September 2011.
33There two categories of totemism; social or collective totemism most widely disseminated form of this belief system (mystic association with animals with unilineally related groups (lineages, clans tribes) or with families, and hereditary transmission of the totems.
Prior to crocodile attack that killed the wife of a headman of Sungai Anak longhouse in June 2011, many Ibans who lived close to Seblak River somehow had underestimated the potential risk associated with crocodiles. Several months prior to the incident one large crocodile was often sighted wading in Sungai Anak, a small tributary of Seblak River fronting the long-house. It was reported that the crocodile had attacked the livestock near the river bank. Believing that there was a ‘mutual agreement’ not to harm one another, the villagers chose to ignore the crocodile until the unfortunate evening of June 2011 when the 42-year wife of the headman was attacked and killed by what was believed to be the same crocodile while taking her bath at the boat landing place near the longhouse. The incident was witnessed by several people including the victim’s husband who together with the other villagers struggled with the killer crocodile for about ten minutes trying to pull out the victim from the reptiles’ jaw.

The belief that crocodiles do not simply attack human was shared by the respondents and key informants from Kg. Bako. In addition, some of them believed that crocodiles in Bako River do not harm the ‘natives’ residents of Kg. Bako. Coincidently the only two persons known to have been killed by crocodiles in Bako River were not the permanent residents of the village.

It has been acknowledged that believed that strict taboos that forbid killing of crocodiles have helped to conserve and recovery of crocodile populations in Sarawak. But some taboos and old beliefs about are contradictory to both Christianity and Islamic teachings, with certain rituals or ceremony to appease crocodiles like ‘miring’ are considered as being satanic, it envisaged that belief in taboo will slowly be eroded. If this happens, it will limit the efficiency of the application of these traditional beliefs to crocodile protection measures.

3.0 HUMAN-CROCODILE INTERACTIONS (ENCOUNTERS)

There was no significant difference in terms of intensity of river usage between respondents from rural (Sibuti Niah & Suai) and semi-urban areas (Santubong, Buntal, Semariang, Pasir Pandak & Salak). As expected there was a strong correlation between river utilization and incidence of personal encounters with crocodiles for all study areas (Figure 2). Fishing was not the only activity that makes people dependent on the rivers. Fishing either as a source of household incomes or subsistence activity is not the only reason why peoples in the study areas still dependent on rivers. Rivers remain the source of domestic water supply and means of transportation for residents from several longhouses in Seblak, Sibuti, Niah and Suai areas.

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34 Prior to this fatal attack only two Ibans were known to have been attacked by crocodiles in Seblak River. Both incidences occurred in the earlier parts of the twentieth century. The rest of the victims were Malays.

35 The 10-year old boy killed by crocodile in 2006 was from a family who rented a house in Kg. Bako. The other victim was an Indonesian sawmill worker.
Figure 2: Correlation between river utilization and personal encounters.

Correlation between river utilization and personal encounters with crocodiles = 0.753. The chances of croc encounter correlates strongly with high frequency of river usage.

<table>
<thead>
<tr>
<th>Correlations</th>
<th>River utilization frequency</th>
<th>Encounters</th>
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</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.753**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
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</tr>
<tr>
<td>N</td>
<td>100</td>
<td>100</td>
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<tr>
<td>Sd. Error</td>
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<tr>
<td>95% Confidence Lower Interval Upper</td>
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<td>.619</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

4.0 LOCAL KNOWLEDGE ON RECENT CROCODILE POPULATION TRENDS

An overwhelming majority of the focus group participants/respondents in all study areas claimed that they had personal encounters with crocodiles:

“There was no crocodile before in our rivers but since about fifteen to twenty years ago they (crocodiles) are everywhere... in the nearby rivers and in the small tributaries”.

(Common revelations made by the participants)
Figure 3: Dependency on rivers and personal encounters with crocodiles in Santubong samples.

![Santubong samples graph]

Figure 4: Dependency on rivers and personal encounters with crocodiles in Bekenu samples.

![Bekenu samples graph]
Figure 5: Dependency on rivers and personal encounters with crocodiles in Niah samples.

![Niah samples graph]

Figure 6: Dependency on rivers and personal encounters with crocodiles for all study areas.

![Summary of analysis on all sampled sites graph]

The followings were identified by the respondents and focus group participants as major factors that had influenced the recent and current trends of crocodile populations in the study areas:

a) Legal status of the crocodiles as protected species.
b) Declining in riverine transportation.
c) Massive vegetation clearing associated with plantation development.
d) Rapid urbanization and development of rural and coastal road networks.
5.0 KNOWLEDGE ABOUT CROCODILE

Like most other large predators, one of the major problems facing crocodile conservation efforts is their public image. People often have negative attitudes towards crocodiles and view them as vicious predators, man-eaters or revengeful monsters. In most cases following crocodile attacks on people, local media seem to exacerbate this stereotype image, and in doing so, they provide inaccurate knowledge and melodramatic depictions leading gross misunderstandings, misconceptions, and even hatred toward of the species.

6.0 CONCLUSION

Human-crocodile conflicts will continue to persist as human continues to co-exist alongside the species. Managing wildlife is all about managing people especially those who affect and directly affected by the species. This requires in-depth understanding of people perceptions of and attitudes toward wildlife. Determining human values and attitudes toward crocodiles can provide valuable insights that in turn can help conservation managers to formulate more effective policies and measures that can ease human-crocodiles coexistence.

REFERENCES


