

## Lessons Not Learned at University #8

### Are tigers endangered?

*The Consultant* was on a United Nations Food and Agriculture Organisation (FAO) mission to the Sundarbans in Bangladesh. This, the world's largest mangrove forest, is home to the Royal Bengal Tiger. It is not easy forest to work in as the only access is by boat and at high tide it is almost impossible to walk through the forest.

Tigers provides a superb protection system. The forest needs protection as there are about 4 million people living within 10 km of the northern boundary of the forest.

It is not only difficult forest to work in, it can be scary. *The Consultant* wanted to check the measurement of at least a few of the plots that the field crews had measured. The teams deliberately selected plots as far away from boat access as possible, presumably because they were not used to consultants actually setting foot in the forest and did not expect *The Consultant* and his entourage to actually visit a plot. One day they selected a plot about 600 m from the nearest spot a boat could reach and it took about an hour to walk in to the plot site. When the party arrived the central plot of three was under 10 cm of water. It was duly remeasured to check that the procedures were being followed correctly and to provide advice on mensurational techniques. The senior staff who had actually managed to walk into the plot returned to the boat at this point while *The Consultant* took the team to the southern plot for some more intensive tuition. On the way back the ground was drying out as the tide was receding and tiger pug marks were observed through the main plot. The tiger must have been inspecting from less than 30m away. No actual tiger was observed, but it was clearly in the vicinity!

Tigers were also part of the Integrated Resource Management Project (IRMP). Years before British wildlife scientists had extensively mapped all the tiger ranges in the Sundarbans, and estimated that there were some 350 tigers, revised down from some 400-450 claimed to have been there many years earlier. By the 1990s some conservation groups were claiming that there were as few as 250 based on their surveys. However these surveys were suspect as their teams had spent little time in the forest and some claims were made that they may not have actually left their boats!

The British survey had been comprehensive and had taken many months. They had found tiger in all the ranges and concluded that the tiger population was in balance with the environment, living on the population of about 80,000 spotted deer in the Sundarbans. If one could have obtained good tiger and deer population data over time it would have made a great predator-prey study.

Several tigers are killed each year in the Sundarbans, the reason generally given is that they are man-eaters and that they have killed someone, commonly a honey gatherer.

Conventional Bangla wisdom is mixed. Some believed that tiger become man eaters when they are old and have poor teeth, or are lame, or injured. Others believed that tiger become man eaters because they could not find a hunting range. It was not an easy ecological issue to resolve.

The conventional wisdom of the British Raj was that an adult tiger was 9 feet (ca 2.75 m) from nose to the tip of the tail.

A reputable FAO tiger expert suggested that perhaps man eating tigers were young adult males that could not find a feeding range and so could not get any food and so took to easier prey. He also tentatively concluded that all the ranges were full. If the ranges are full then the tiger population is in balance. This particular expert had quite some street credibility as he had had a large chunk torn from his thigh by a tiger. He had been as far up a tree as he could get, but obviously not quite high enough.

Almost all the tiger measured were less than 9 feet in length and so by definition they were all young tiger. If only young tiger were observed then the population was probably on the decline.

While *The Consultant* was visiting the forest, a tiger was captured and brought in. It seemed tired and listless. It was only 7'6" (ca 2.3 m) from nose to the tip of the tail. Because of its size it was considered to be a sub-adult male. *The French Ecologist* managed to get the skull and in good research fashion skinned the head, extracted the brains, and boiled it down so he had a skull to investigate. He found that the tiger had dislocated its jaw and that would have made it difficult to hunt. The upper canine teeth had been displaced and these upper canines had worn away the inside of one of the lower teeth<sup>1</sup>. But the significant wear had obviously taken some time and this indicated to *The French Ecologist* that it was not a young sub-adult tiger at all but an old male that had just got too tired to want to live. Was the length criterion for an adult tiger wrong?

There were many alternative constructs to explain the limited facts available. The original population of 450 was probably an over-estimate. The population of 250 was probably an underestimate given the lack of field experience and lack of time in the field. The 1975 (or thereabouts) estimate of 350 was at least based on credible evidence and based on an analysis of ranges. There had been some later quite detailed evidence of some tiger ranges as part of the current IRMP project and these supported the British analysis in the mid 1970's. There was evidence that the spotted deer population was stable, which indicated that their predator population was also stable.



The fact that an adult male was only 7'6" in length suggested to *The French Ecologist* that the Sundarbans tiger was a sub-species of the Royal Bengal Tiger that had evolved into a smaller animal, to better survive in the mangroves. It had developed large pads to facilitate walking in the muddy environment. Now this thought really caused some consternation and senior Bangla staff insisted that this not appear in the main report. Why? Well if the Sundarbans tiger is a different sub-species then the conservation pressure would become all that much greater.

Later *The Consultant* carried out an Extended Natural Resources Survey of all vertebrate animals and vascular plants in Bangladesh and found that there was evidence of tiger on about 60-70% of the plots they re-visited in the Sundarbans. Given the small plot clusters and given the tidal influences this seemed indicative that tiger were all through the forest.

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<sup>1</sup> Photo of a normal tiger jaw taken from flickr, a publicly available photo from TomFlickrPhotos.

Basically the conclusion was that there is not yet enough evidence to really determine whether the tiger population is stable and/or endangered. The general feeling among the more rational international consultants, matched in private discussions with knowledgeable senior Bangla staff, was that the population was probably stable but was also endangered. The basis of this conclusion was the limited evidence that the ranges were full, that the tiger killed were either sub-adult males that had not been able to find a range, or were more likely old ageing sick tiger who had been hunted out of their range. Who knows what the answer really is! It was obvious that the various forms of conventional wisdom were not totally consistent and it was also obvious that political considerations intervened.

**Lesson:** There can be many different ways of looking at a situation, often contradictory, and it can be a challenge to work out which is right. It may even be impossible. As Flaubert said “There is no truth, there is only perception”.

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