

#### **HCV 1.4 Critical temporal use**

According to the HCVF Toolkit for Malaysia (WWF-Malaysia, 2009), any forest area which is important to wildlife for feeding, nesting, roosting, migration or contains saltlick is deemed as HCV 1.4. Therefore, the habitats listed below fall into the category of HCV 1.4:

#### ***Findings***

##### *Salt Licks*

As of now, there are no signs that salt licks are present in Trusan Sugut FR.

##### *Mangroves/ estuarine areas*

Mangroves can be found in the eastern part of TSFR (Figure 20), and are perceived to be largely undisturbed and in healthy condition (Joseph Tengah, Sabah Forestry Department, pers. comm). It is a well-known fact that mangroves provide shelter as important breeding ground and nurseries for a lot of fish species whereas estuarine areas are important for migratory shore birds which make full-use of these productive sites during their long journey south or northwards. Malaysia is located within the East Asian-Australasian Flyway, and Tg. Bidadari which is about 92 km southwest of Trusan Sugut FR, has been identified as an international important site for migratory species (Bamford *et al*, 2008; pg 200).

Mangroves are also important habitat for proboscis monkeys (*Nasalis larvatus*) [Joseph. T., 2012], endemic to Borneo (HCV 1.3) and classified as endangered under the IUCN Red List (HCV 1.2).

##### *Oxbow lakes*

There were no oxbow lakes detected within Trusan Sugut FR during the time of survey.

##### *Caves*

The site where the caves were found is a sandstone escarpment of about 6km long running east to west (Hymeir K., *unpublished report*). It is thought that these caves were formed due to erosion by wave action in past geological times. Upon preliminary investigation, the two sites, namely Gua Sam Mannan (N 06° 18.636'; E 117° 37.129') which was concluded to be an overhang and not a cave; and a cave (N 06° 18.624', E 117° 37.100') about 100m away, did not contain anything significant for them to be considered an HCV at this point in time (Figure 18).

#### ***Management recommendations***

These habitats are naturally protected from disturbance and degradation due to the protected status of Trusan Sugut FR although any land-use activities from up-river might affect the conditions of these habitats. Hence, the forest manager should make best efforts to engage with stakeholders from up-river to ensure that land-use changes do not negatively affect the HCVs found in Trusan Sugut FR.

Some mangrove species are debarked to obtain *tangar* for house or boat building, usually killing the tree in the process. Local communities informed during informal interviews that *tangar* harvesters, usually from the Phillipines, enter illegally into the mangrove area to harvest *tangar* (Corpuz, 2015). Therefore there needs to be a two-pronged approach to address this threat specifically to mangroves:

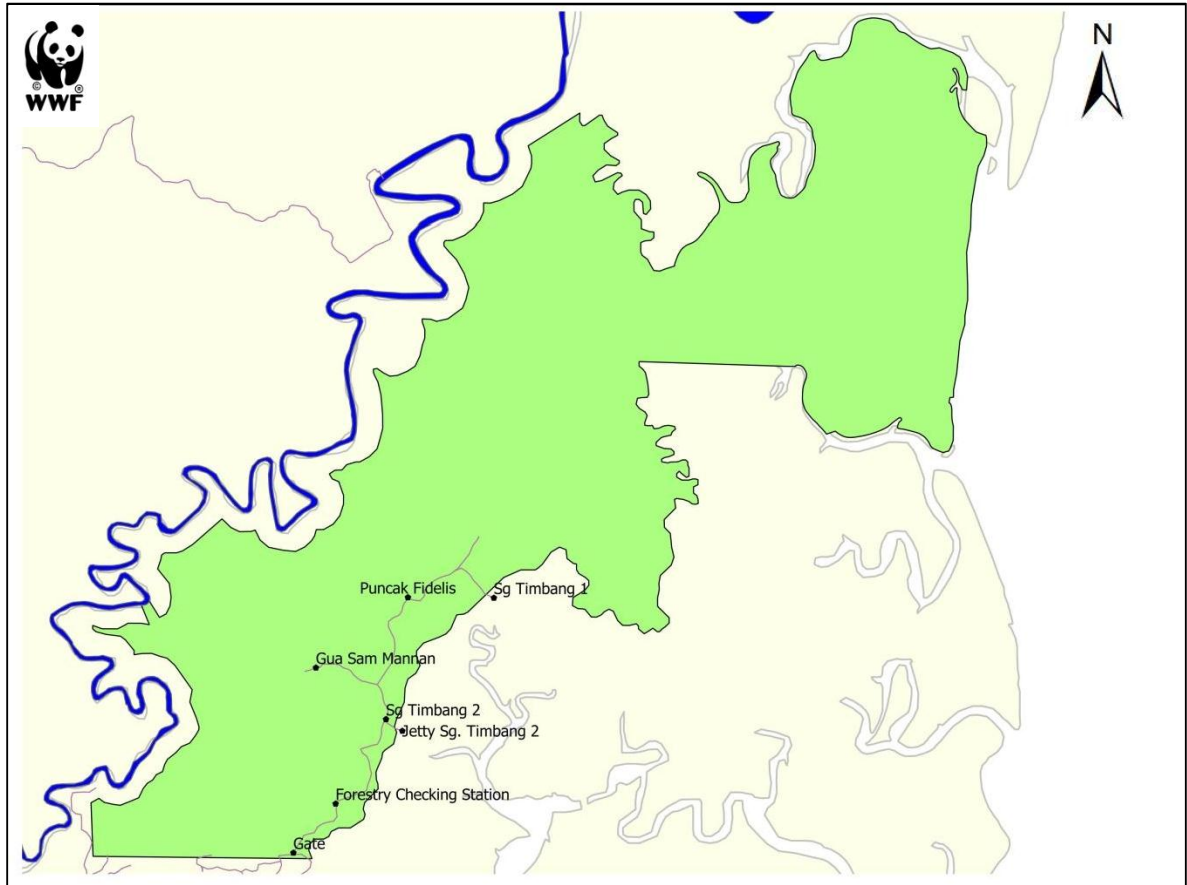
(i) Raise awareness amongst local community to use mangrove sustainably within specified zones, (ii) increase patrolling and enforcement around the mangrove area to deter illegal entry of external *tangar* harvesters, such as by making use the local community as eyes and ears on behalf of the Forestry Department.

In particular on the caves, although the two sites visited do not have touristic values, both should be placed under strict conservation zones until further scientific investigations have been conducted and their conservation value reassessed. The bats using caves and crevices at the escarpment should be investigated and a plant survey conducted along the escarpment from the foothills and up the cliff-face. Troglifauna (wildlife that depend on caves for nesting, roosting or even foraging for food) is potentially present and should be investigated further. Worth mentioning is the carved out 5-6 rectangular cavities located on the cliff face about 7 or 8 meters off ground level near Gua Sam Mannan, which warrants further investigation (Figure 27 & Figure 28, Appendix 10). Experts (archaeologists/geologists) should be sought to investigate and study them. The other known caves and “cavities” identified by the SFD in the area should be investigated in the near future. However, access to these areas should be restricted to only SFD personnel.

### ***Monitoring recommendations***

Monitoring should be carried out twice a year to ensure the conditions of these habitats do not degrade over time. Satellite imagery could be used to ascertain if the mangroves are still in good condition.

Patrolling of the mangrove areas should be done few times per week, ideally as part of the patrolling efforts for Trusan Sugut FR, to ensure that illegal encroachment and poaching does not happen (see section 4 of Trusan Sugut FMP). This could also deter encroachers entering Trusan Sugut FR via the mangrove area.



**Figure 18 Key landmarks within Trusan Sugut Forest Reserve**