

# HCV 1 Biodiversity Value

## HCV 1.2 Threatened and Endangered Species

### Definition

Any species categorized as either Critically Endangered (CR), Endangered (EN) or Vulnerable (VU) on the IUCN Red List, Appendix I of CITES or listed as protected under Malaysian legislation (federal or state), is HCV 1.2. However, for practical reasons forest managers may want to limit field surveys of fauna to mammals (particularly large ones, over 20kg in weight), birds and herpetofauna, unless literature indicates that there are other species in the area which require specific attention. This does not mean that other taxa are unimportant, and wherever possible, if the expertise and survey protocols are available there should be covered too. It is also recommended to cross check the IUCN Red list with the Malaysian Red Data Book, once that is available. Where there may be difference between the Malaysian Red Data Book and the IUCN Red List, the Malaysian Red Data Book should always take precedence.

### Findings

- The presence of considerably high number of high conservation significant fauna and flora from both past research findings and the recent HCV assessment may conclude that NGR project area is an important natural plant habitat or for wildlife nesting and foraging habitats.

### Management Prescription

- Conduct periodic patrolling and surveillance in designated HCV areas to curb illegal activities, such as encroachment and poaching.
- Establish a long term biodiversity monitoring system for critical forest ecosystem, flora and fauna.
- If the management team discover high conservation value plant species (IUCN red list, prohibited species under Sabah Forestry Department, CITES and Sabah Wildlife Enactment) as listed in Appendix II, in permanent sample plots and nature trails in NGR project area, they should be clearly marked on the ground and on the maps.
- Migratory pathway of wildlife on logging roads, along streams or wildlife trails in the forest should be marked on the map and kept to ensure wildlife are able to use it for movement within and between forest reserves.
- Field staff is required to attend training courses on plants and wildlife to further enhance their botanical and wildlife knowledge on species that are currently listed in the threatened, endemic and forestry prohibited lists to ensure they do not harvest or damage and also for monitoring purposes.
- Update current biodiversity conservation status to management team of the upgrade or downgrading of

threat status locally and globally.

#### Monitoring

- Periodic monitoring and control should be carried out to prevent encroachment in the HCV areas. Any signs of encroachment should be reported and dealt with immediate actions.
- Quarterly progress reports in reporting of the progress of activities as prescribed in the approved Annual Work Plan (AWP), encompassing reporting of monitoring results of known HCV attributes.
- Periodic monitoring by conducting re-enumeration of all the trees in the permanent sample plots and to be conducted once every three years to get indication of changes in tree structure and species assemblages.
- Periodic monitoring of endangered, endemic and migratory wildlife species will be practiced using Wildlife Management System adopted by the management team. Any changes in terms of population count or migratory pathways observed by either researchers or ground staffs, the management team must be alerted.

## A. Flora

### Site perspective

Of the 724 taxa of recorded plants in NGR FMU, 28 species that derived from 4 families of plants are rare, endangered or threatened plant species. There are 10 plant species that listed in the IUCN red list as Vulnerable (VU), 5 as Endangered (EN) and 13 as Critically Endangered (CR) are known from this project area based on regional level assessment (Appendix II). About 70 % of these threatened species are from the family Dipterocarpaceae, the most dominant group of trees in the lowland area and important source of timber for the state in the past. However, 85 % of the flora recorded from this area are yet to be evaluated under IUCN categories and the assessment and updating process by the relevant research agencies will take a considerable period of time.

In reference to the Sabah Wildlife Conservation Enactment 1997 (SWD, 1997), 34 species that derived from 5 families are listed and recorded in the project area. Under Sabah Forest Rules 1969, the director of forest may for reasons of silviculture or for any other reason prohibit or restrict the cutting or removal of plant species in the forest reserve. There are 39 plant species in these FMUs that fall under the prohibited species by the Director of Sabah Forestry Department. Furthermore, 1 species are listed under CITES list.

Due to high presence of high conservation value flora in the reserve, it is important to protect and enhance the forest ecosystems in its natural setting even though the forest is under various regenerating status. Long-term monitoring activities by using permanent sample plots are useful to determine long-term population trends of increase or decrease that can be related to human disturbance or short term term fluctuations caused by variations in weather or unpredictable natural catastrophic events.



In general, the presence of high conservation status fauna may conclude that this reserve is an important for nesting and foraging habitats of wildlife. However, the presence of these high conservation value wildlife during the assessments may not be able to verify the stability of population. Therefore, the present wildlife monitoring activities using combination of techniques, namely camera traps, transects, opportunistic sightings should be carried out. It is important to distinguish long-term population trend of increase or decrease of these species that may have been influenced by human disturbance or environmental factors, such as fluctuations of weather or unpredictable natural catastrophic event.

### **The rationale for the identification of HCV attribute**

The management should consider that the assessment indicates that the whole area classified as mixed dipterocarp forest, kerangas forest and limestone vegetation both in lowland and upland altitudinal zonations should be categorized as HCV 1.2 that indicates habitats for threatened and endangered flora in the project area for its importance in providing potential foraging habitats for endangered and threatened wildlife (Fig. 1).