Sun bears (Helarctos malayanus) are the smallest and least studied of the eight bear species. Little is known about these bears, including their distributions and population densities, due to their remote habitat and shy nature. Sun bears live in lowland tropical rainforests in Southeast Asia. They can be identified by the distinctive yellow patch on their chest, which legend says represents the rising sun.

Sun bears have been found to choose habitats preferentially ranging between 15.4 km and 20.3 km. They face threats from deforestation due to the increase in plantations and illegal logging, as well as poaching.

Sun bear habitat needs to be further protected because it has been reported that most of the current protected areas do not cover the majority of suitable sun bear habitats, which puts those areas at risk for destruction. Adding protection for potential passageways between national parks ensures that the already fragmented habitat does not further degrade.

Methods

1. Suitability Analysis
   Calculated by first determining the most important factors for sun bear habitat. All variables were reclassified into 5 categories with 1 being the most suitable and 5 being the least suitable. Variables were weighed by importance for habitat selection using raster calculator (Tree cover - 30%, Mean annual temp - 20%, Mean precipitation of driest quarter - 20%, Land cover - 15%, Seasonality - 10%, Distance to roads - 5%), Factors, reclassifications, and weights determined by Nazeri et al. (2012).

2. Least Cost Path Analysis
   Used final suitability map to determine most practical area for corridor. Determined by identifying the protected areas closest together connected by suitable habitat. Three starting and ending points were then chosen. Cost distance and cost path tools used to calculate paths that travel through areas most suitable according to criteria. Raster then converted to polyline.

Conclusions

The suitability analysis shows that there is a lot of suitable habitat in Malaysia for sun bears so the goal now is preventing its decline. The true distribution of these bears is not well known so a suitability analysis is an informed way to predict actual spread. The corridor analysis aimed to identify the most suitable areas to protect that would connect known protected areas in peninsular Malaysia. Connecting these areas would help preserve declining sun bear populations. Identifying these areas could also help inform wildlife managers of the most beneficial areas to protect.

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