

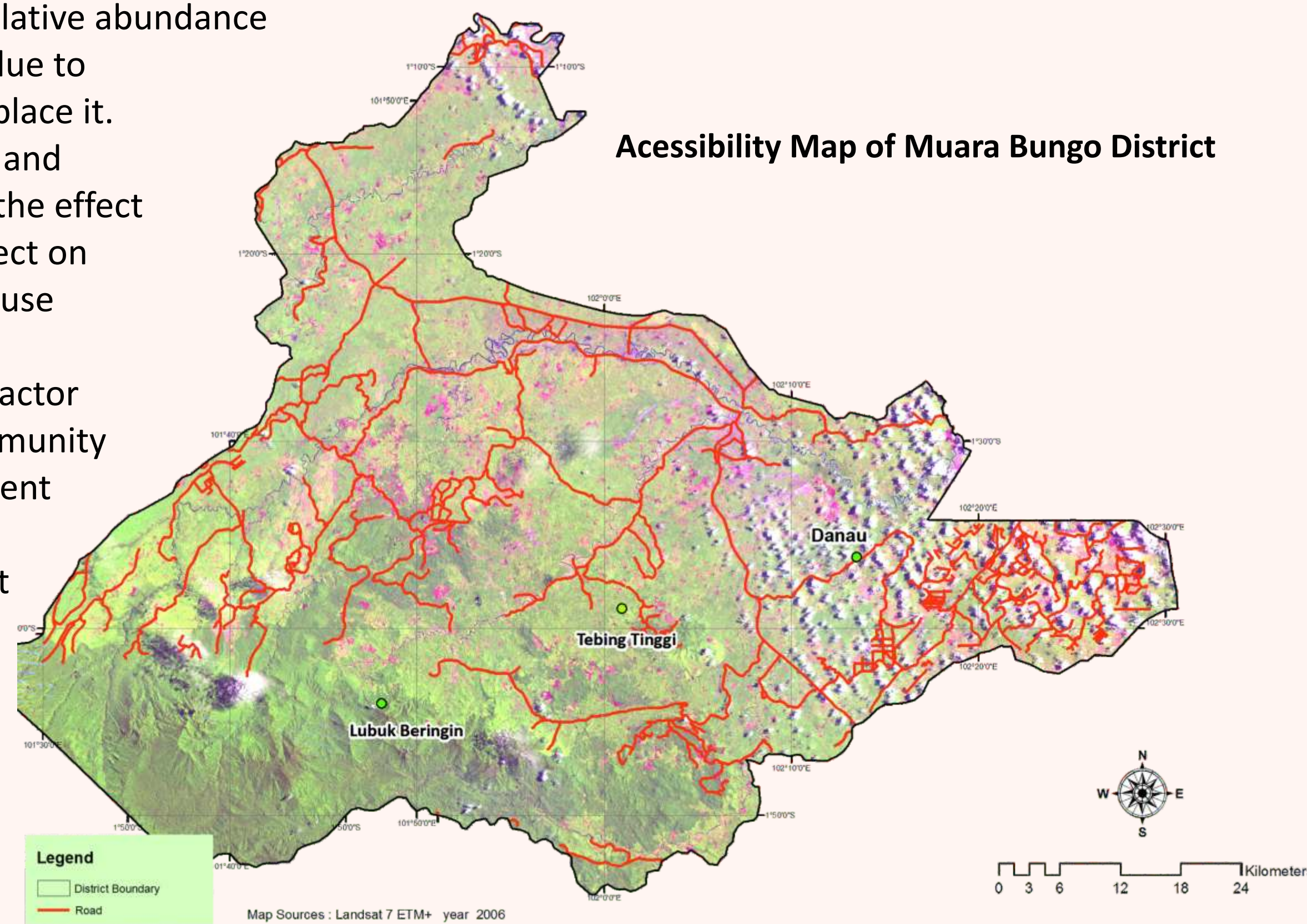


Land Use Change and Local Communities Perception on Biodiversity

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Introduction

Variety of animals and plants that called BIODIVERSITY, play important role in ecosystem function and livelihood sustainability. Biodiversity become source of basic material for food, health, construction (light and heavy), fuel and fiber. Biodiversity product like timber, resin, fruits and honey become important source of income to community as timber and non timber forest product (NTFP). On the other hand, biodiversity has ecosystem services such as genetic resources, spiritual and religious value, aesthetic value, provision of habitat, nutrient cycling, water cycling, climate regulation, pollinators, seed dispersal, and any other services. Rapid and unprecedented land use changes have reduced significantly local and global biodiversity measures such as species number, relative abundance and compositions. Some indigenous species lost due to land use change and some introduced species replace it. Changing biodiversity affects ecosystem function and livelihood sustainability at the same time. While the effect on ecosystem function is mostly one way, the effect on livelihoods are confounding to the facts that land use changes are driven and have consequences on livelihoods. Economic reason, of course, is main factor of land use change. Economic orientation of community is strongly influenced by infrastructure development condition in certain area, for example access to market. Forum group discussion in three different road access of villages conducted in Bungo District, Jambi, Sumatra to know: local perception of biodiversity function and in what land cover biodiversity and its function still found.

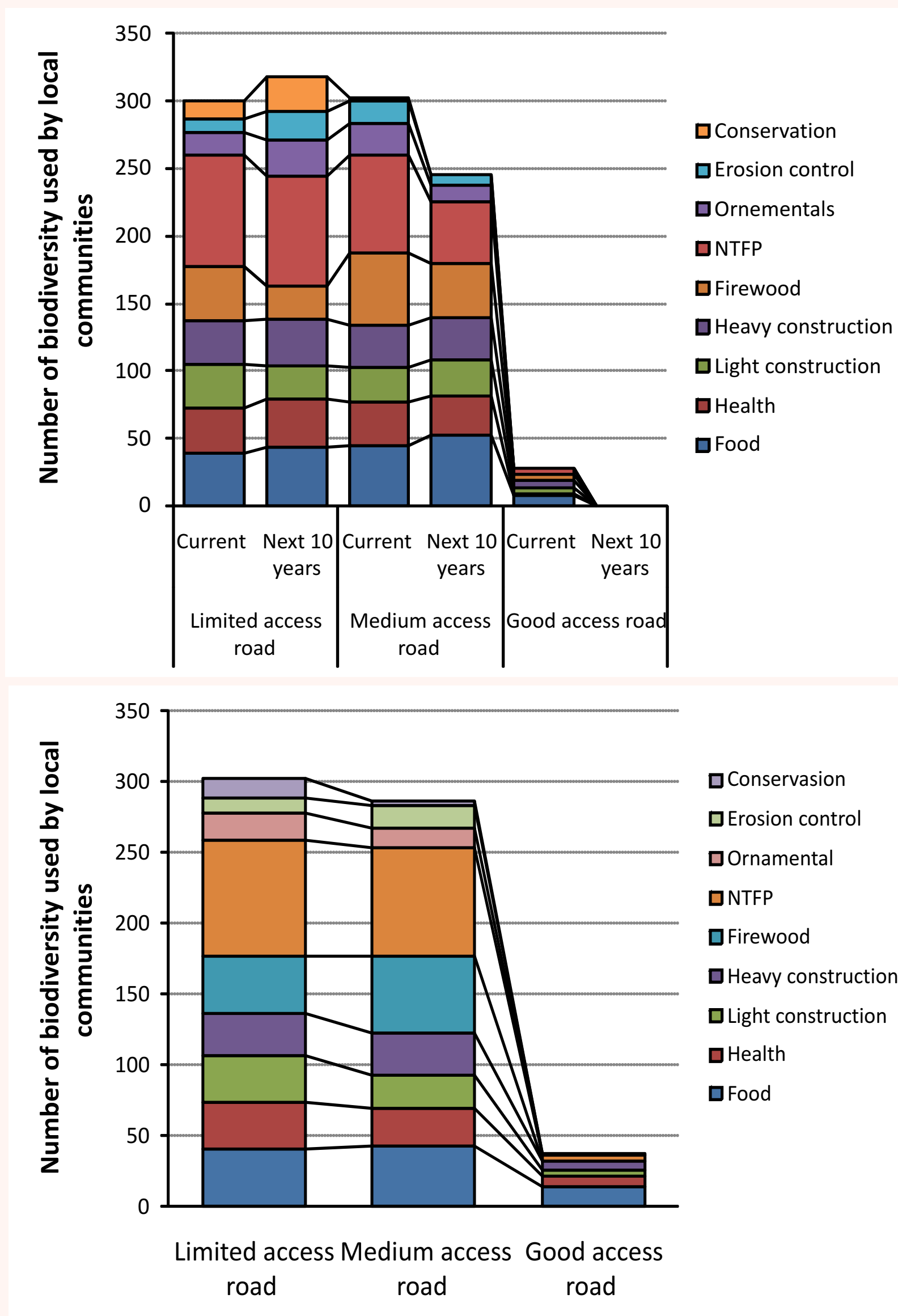


Methods

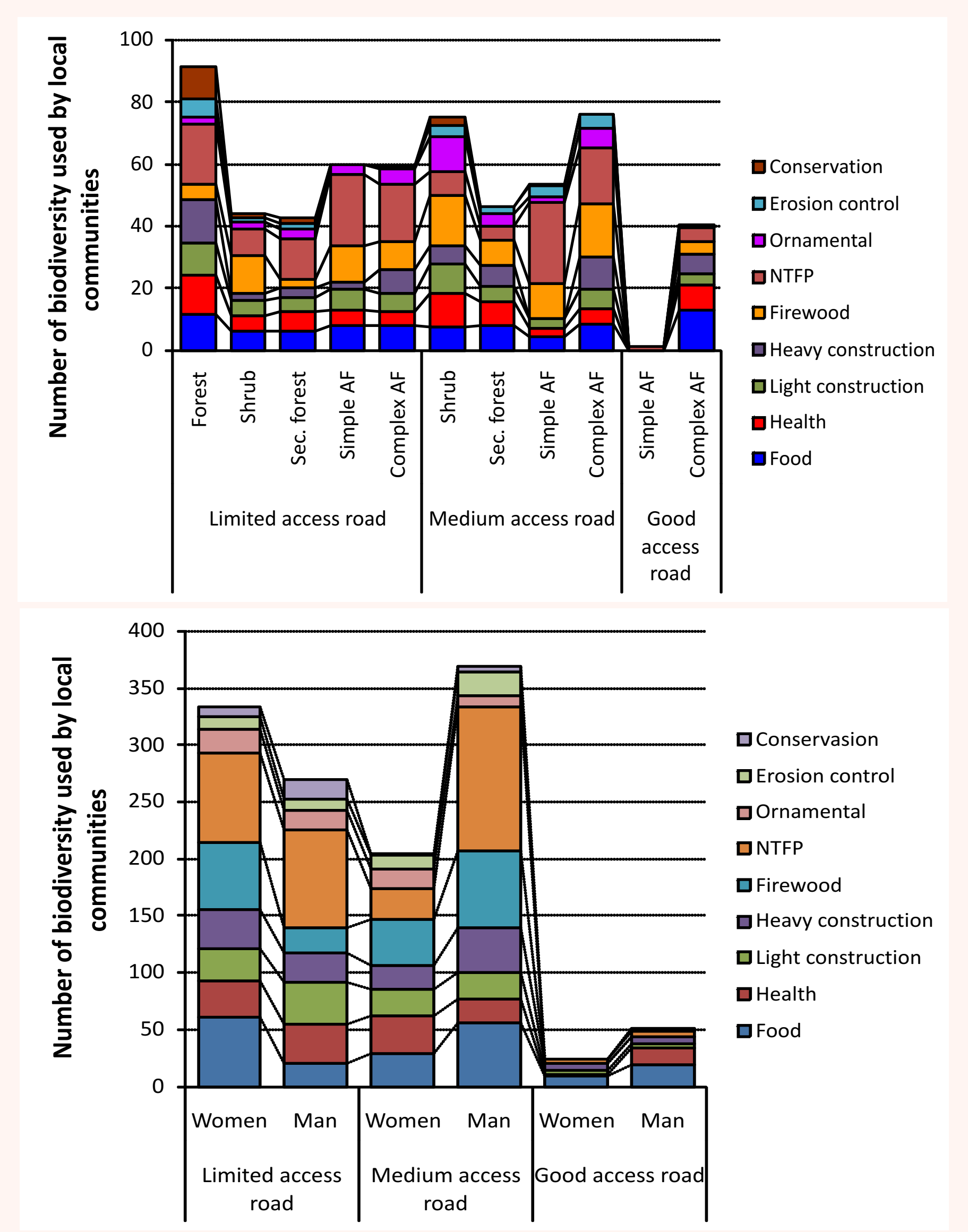
Local community perception on biodiversity roles are assessed through Focus Group Discussion (FGD) in three villages of different accessibility and land use intensities in Bungo district. Lubuk Beringin is the village with limited access, Tebing Tinggi has medium access and Danau has very good access. Two FGD were conducted in each village, each of only one gender group, consisting of 5-10 peoples. In each group discussion is led and focused on their perception of biodiversity function in the past, present and future. During the discussion participants were asked to give scores to each function, that have been identified and listed by the researcher before hand, in each different land use type. Local community perception of biodiversity presence for next ten years was also assessed.



Result



- Mosaic of land uses consist of natural forest and agroforest are still maintained in the area with limited access, but land use change to simple agroforest (low external input agroecosystems) and monoculture (intensive agroecosystem) occurred in the area with good access road.
- Biodiversity function as source of basic material, income and services is still recognized by local communities in the area with limited and medium access road. Contrary, in the area which has good access road dependence of local communities to biodiversity is very low but dependence to materials substitution is high.
- In the area with limited access road, women involve in the activities related to biodiversity usage particularly for collecting food and firewood, but in the area with medium and good access road man play an important role. Man recognize well biodiversity as source of food, firewood, heavy construction and NTFP.
- Natural forest is the main area as source of biodiversity for local communities needs in the with limited access area. In the medium and good access area local communities depend on simple agroforest and monoculture systems as source of biodiversity needs.
- Local communities predict for next 10 years that number of biodiversity which have conservation value will increase in limited access road area due to improving they knowledge on conservation, but biodiversity as source of firewood and NTFP will decrease in medium access road area since they start to convert fuel from firewood to gas and no more extract the NTFP. Dramatically decrease of biodiversity occurred in good access road area because they plan to convert rubber agroforest to oilpalm plantation.



Conclusions

- Infrastructure development is give good impact to livelihood, but as a potential threat to biodiversity due to land use change. Some biodiversity loss during land conversion and impact to local communities on recognizing them.
- Natural forest and agroforest with high value of biodiversity and ecosystem services is no longer interesting for local people because only provide low income. Changing to monoculture become the best option for local people in good access area to increase economic income.
- Rewards for local people in limited access who conserve natural forest as an option to maintain biodiversity and its ecosystem services.

