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# Indirect approach on human-wildlife conflict mitigation: potential local landscape based ecotourism in Margahayu, Labuhan Ratu VII

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**Abstract.** Human-wildlife conflict in Way Kambas National Park is still going on with some social and economic lost. Indirect conflict mitigation through the building local landscape based ecotourism was studied in Margahayu, Labuhan Ratu VII, East Lampung. Its local people awareness play important role in supporting its local economy empowerment. Besides Rumah Konservasi, potential natural track showing plant diversity, entrance point for wild elephant to the settlement, orange plantation and natural swamp was chosen for further works. Name boards were assigned.

**Keywords:** local landscape based ecotourism, human-wildlife conflict, Margahayu, Labuhan Ratu , Way Kambas National Park

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## 1. Introduction

Wildlife-human conflicts due to livestock predation (Khorozyan *et al.*, 2015), wildlife interference to settlement and agriculture areas are challenges for biodiversity conservation, especially for local people welfare surrounding national park. The livelihood of local people who live next to conservation areas generally are directly depend on its biodiversity, whilst their socio-economics lost and conflict with wildlife are still ongoing. The increasing wildlife-human conflict affect the decreasing natural environment complex role in any level from individual to

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ecosystem (Ripple *et al.*, 2014). As the results, it disturbs the synergic harmony between local people development and biodiversity conservation (Loveridge *et al.*, 2010).

Way Kambas National Park (WKNP) is an important natural habitat for big mammals i.g. Sumatran tiger, Sumatran rhinos and Sumatran elephant. Way Kambas National Park is surrounded by 37 villages, including Margahayu, one of settlement in Labuhan Ratu VII village, Labuhan Ratu. Margahayu is one of the main entrance to Elephant Training Center, WKNP. The main livelihood is cassava plantation and swamp padi field. Rumah konservasi, Conservation house was built by Biology Unila (Priyambodo and Rustiati, 2016), and has been fruitfully used for local activities as well as local government, NGOs, and universities. One main problem faced by Margahayu is conflict with Sumatran elephant, which give big impact on economical lost due to crop raiding, especially during the harvest season (Sitiati *et al.*, 2003; Venkataraman *et al.*, 2005).

Conflict mitigation has been done using fire balls, fireworks, canal to deter and stop the wild elephants into the settlement and crop areas. Elephant watch is done in different ways, from high technology to local people involvement which is conducive in the long term conservation efforts. Indirect conflict mitigation by approaching local people (Mehta and Kellert, 1998), increasing awareness and welfare through creative economy efforts has been done in Braja Harjosari, one of village bordering directly to WKNP. Potential local resources based ecotourism program is successfully applied and visited by local, national and international visitors (Rustiati dkk., 2016; Rustiati dkk., 2015; Haidawati, 2015)

The understanding on the importance of wildlife-human harmony is part of Margahayu livelihood by its complementary ecotourism activities. The sustainable ecotourism building is needed. The precision in methods choice for identifying potential natural resources in Margahayu for landscape based economy development will be the one of the main keys to its success. Companionship is highly needed to optimize the use of conservation house and its landscape in the long term to raise its welfare and economy. The study on optimization of the landscape use and management for ecotourism was conducted.

## **2. Materials and Methods**

Companionship program for local people of Margahayu, Labuhan Ratu VII, was conducted in August–November 2017 by direct local involvement, field surveys on potential ecotourism landscape resources, ecotourism point tagging and discussion. Survey was done mainly in the border line with WKNP. Point tagging was applied based on the local people will and the potential area found. Discussion was held after survey.

### 3. Result and Discussion

The welfare of local people living directly next WKNP, including Margahayu, Labuhan Ratu VII is high priority. As most of them are farmers, supporting conservation efforts in keeping the forest and local people existence and harmony is needed. Early meeting with the representative local community, Sunanda, the head of sub village of Margahayu, Laburan Ratu VII was done in WKNP headquarter for field work agreement, and continued in Ibu Hj. Raisah residence (Figure 1). Preliminary survey was agreed to be done in the potential areas for ecotourism program, and ecotourism objects for development. Conservation house (Figure 2) (Priyambodo and Rustiati, 2016), as Biology Department, University Lampung project through TFCA Sumatera consortium Alert-Unila, is the icon of Margahayu, Labuhan Ratu VII. It is used for local and outside institutions activities, such as universities, NGOs, WKNP and local government of East Lampung. Five potential landscapes for ecotourism objects include:



Figure 1. Early meeting with Sunandar, head of subvillage Margahayu, Labuhan Ratu VII in WKNP headquarter, continued to Ibu Hj. Raisah residence



Figure 2. . Conservation house as Biology Department Universitas Lampung, Margahayu, Labuhan Ratu VII



Figure 3. Active wild sumatran elephant tracks and entrance point to Margahayu, Labuhan Ratu VII, East Lampung and for local fishing activities.





Figure 4. Spiny drum, deterrence tool in wild elephant active entrance track to Margahayu, Labuhan Ratu VII

1. Wild sumatran elephant active tracks (Figure 3). This is the swamp spread along the outside border lane WKNP and Margahayu. This area is also being used for fishing by local community. The use of fishing activity for both ecotourism object and elephant raiding watch.
2. Wildlife elephant deterrence tools, the spiny drum of WCS-IP WKNP project for elephant-human conflict mitigation (Figure 4), set up in the border lane Margahayu-WKNP (the main road to Elephant Training Center, WKNP).
3. Margahayu Resort watch tower– WKNP (Figure 5), one of potential ecotourism object for conservation education and awareness.
4. Fish pond owned by Ibu Hj. Rasiyah (Figure 6) in Margahayu, managed by Mr.Karli.



Figure 5. watch tower in Margahayu Resort

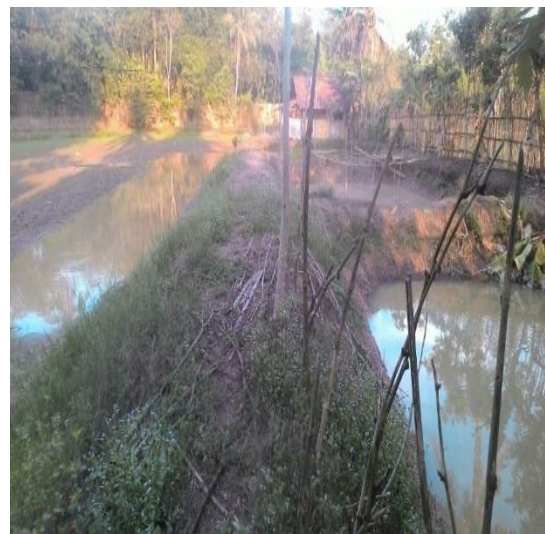


Figure 6. Fish pond owned by Mrs. Hj. Rasiyah, Margahayu, Labuhan Ratu VII

5. Margahayu landscape (Figure 7) next to WKNP, is a potential and interesting view for jungle track activity, and so far has been done. With sharpening the knowledge on wildlife diversity for both flora and fauna, and the back ground related to its existence in WKNP, it will be very potential object for education tourism.



Figure 7. The beauty and uniqueness of Margahayu landscape directly next to WKNP

Community based conservation is the most practical approach to slow down the lost of biodiversity in developing countries (Mehta and Kellert, 1998). From further survey and discussion, there were potential jungle track in Margahayu Resort (Figure 8), next to WKNP border lane. It is separated from conservation area by 2 meter wide canal, 3 meter deep. Along this jungle track there are wild elephant entrance point to Margahayu, showed by elephant slipped tracks. This indirect signs of wild Sumatran elephant can be a natural tool for conservation education and awareness.

Along the jungle tracks, there is an orange plantation owned by local people, Bapak Uum. During the survey, he was very enthusiastic and offer his plantation to be included in Margahayu ecotourism. In the end of the border to Margahayu Resort, WKNP, next to Way enet river, there is one of five watch posts (Figure 9). This post can be used for rest area and natural view of the national park, orange plantation, Way Penet river and water buffalo owned by local people.





Figure 8. Survey along the border lane of Margahayu – WKNP, to Margahayu Resort and traditional orange plantation owned by local people



Figure 9. Margahayu Resort post, Labuhan Ratu VII

Jungle track survey was done along the border lane of Margahayu – WKNP. The track choice was expected to fulfill local people wish as well as its safety. This tracks also represented the unique landscape of Margahayu. Potential point tagging and direction was using the name board (Figure 10).



Figure 10. name board in potential ecotourism points Margahayu Resort and direction to Rumah Konservasi Margahayu, Labuhan Ratu VII

#### 4. Conclusion

Landscape based ecotourism survey gave the potential resources for further local economy development in Margahayu, Labuhan Ratu VII, focusing in conservation house and natural track of Resort Margahayu. Tagging was done by name boards

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