



Diversity of Wild vs Cultivated Plants in Indonesian

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Abstract

Indonesia is one of the centres of biodiversity in the world. Forests in Indonesia are one of the richest in the world. On the other hand, Indonesia is also the country with the highest destruction of its forests. Forest area continues to decline due to forest burning, land conversion and illegal logging. This has caused wild plants decreased. Meanwhile, domestications and plant breeding has caused the increase of cultivated plant varieties. However, cultivated plants are also decreasing when the quality do not match the demand.

Keywords: Cultivated; Diversity; Dynamics; Indonesia Plants; Wild

Introduction

Indonesia, which is one of the richest in plant diversity on earth, faces plant extinction. The loss of plant diversity brought about irreversible consequences of gene pool depletion, which is caused by the rapid destruction of habitats. Land conversion, illegal logging, and fires are the main cause of the diversity decrease. In addition, climate change has also cause habitat loss of certain plants. Almost every year, there are a lot of fires in Sumatra and Kalimantan. Many forest areas were burnt for clearing and changing into palm oil productions.

Indonesia as one of the Mega Biodiversity Countries in the world is endowed with biological diversity as well as a level of endemism or a level of ecological uniqueness, and organisms in a very high geographic structure that can be used as one of the basic assets for sustainable development [1].

Approximately 70% of the world's plants that live in forests are losing their habitats due to deforestation, ultimately leading to species extinction. Many unique plant

species which were reported as new species may face extinction and many others are gravely threatened. Although every year, at least 5000 new species were reported (The Plant List) [2], it doesn't mean that the number of species increase, because most of the discoveries, were mased on herbarium specimens, which may have been extinct in the wild.

Biodiversity of Indonesian tropical forests is under threat because of increasing human population and rapid developmental activities. Forest burning will automatically threaten the existence of unknown plant species. When a giant foreign conglomerate set its eyes on Indonesia's largest intact rainforest. They will buy the land and change it into agricultural lands, palm oil plantations, or even mining.

Wild vs Cultivated Plants

Wild plant diversity across the lowland and highland agro ecosystem representing more than 30 land use types had been conducted in Europe. The results of this study revealed that the most important factors affecting the plant diversity was the land use type. The highest plant diversity

was found on grazing land with sparse tree cover, while the lowest one was in the land use types representing annual crops or fallow [3].

Cultivated plant diversity is the foundation for the ecosystem approaches needed in agricultural production to steer the transition of food systems and reverse biodiversity loss. Conservationists had tried to cultivate rare plants because many plants face extinctions. It is important to domesticate rare plants in order to save them from extinction.

In some areas in Indonesia, people hunt rare plants from mountains for sale. If the buyers live on highlands, it doesn't matter, the plant may survive. However, most plant collectors are from the cities at lowland areas, consequently, most plant collections may not survive. Some efforts have been made to make low altitude tolerant plants e.g. *Pimpinella pruatjan*, a highland plant; however the results are still not satisfying.

In the world, more than 5,000 new taxon names were published every year [2]. That is a record of the discovery of new species, new combinations etc. However, this does not mean the number of plants increases, but the high number of plants that have not been reported. Indonesia's rainforests contain 10 percent of the world's known plant species [4]. Thus at least 500 new taxa of wild plants from Indonesia had been reported annually.

The decline in plant diversity does not only occur in forests, but also in cultivated plants. These plants Some wild plants have been domesticated as agricultural plants e.g. *Pimpinella pruatjan* which is popular as aphrodisiac drug. A case in cultivars of semarang apples, water apples etc. which may be extinct due to uneconomical. Diversity of cultivated plants is decreasing continually until today and this has cascading effects on ecosystem services and persistence of rare plants [5].

| No | Wild plants | Cultivated plants |
|----|--|--|
| 1 | 318,000 species | 32,000 species. |
| 2 | Evolution = the splitting up of an evolutionary lineage into two separate ones | Domestication = the changes necessary in order to adapt plants to habitats especially prepared by man. |
| 3 | Market is a minor cause of extinction | Market is a major cause of extinction e.g. when the plant can't be sold, none will cultivate them |
| 4 | Not used yet | Used |
| 5 | Long term uses | Short term uses |
| 6 | Considered to be unimportant | Important |
| 7 | Non consumptive | Consumptive |

Table 1: Differences between wild and cultivated plants

Conclusion

- Wild and cultivated plants need to be conserved because many wild plants have been changed into cultivated ones
- Many endangered plants have changed into extinct in the wild
- Some plant species have been extinct.

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