PT Astra Agro Lestari, Tbk

Prosper with the Nation

EVERLASTING RESTORATION & REHABILITATION

Reviewing the Success of Program

RIPARIAN FOREST REHABILITATION EXPERT REVIEW

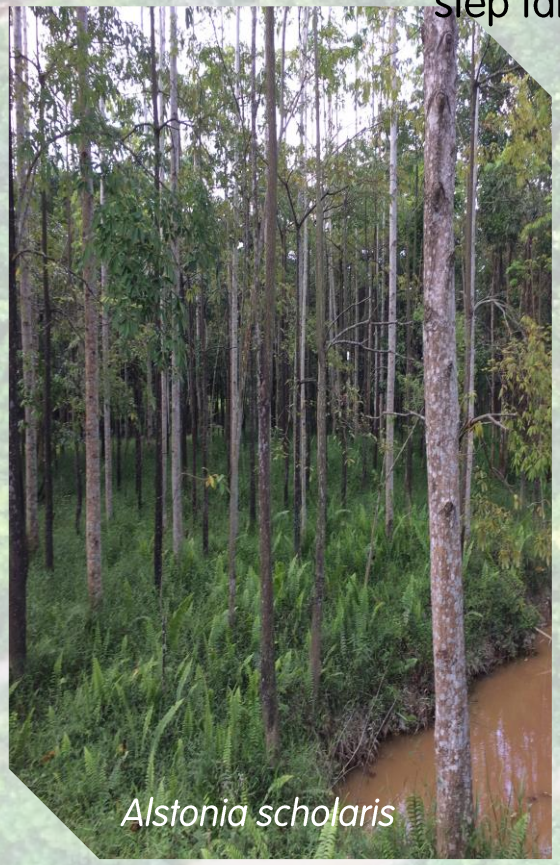
Oil palm plantation industry in Indonesia emphasizes the sustainability principles in their production proses as mandated in Law No. 11/Permentan/OT.140/3/2015 about Indonesian Sustainable Palm Oil (ISPO). In implementing sustainable oil palm plantations, we focus on conserving riparian ecosystems through gradual rehabilitation efforts every year by adjusting the rejuvenation schedule of oil palm plants in the management unit (http://www.astra-agro.co.id/en/rehabilitation/) as required by ISPO Principles and Criteria no. 4.7 (conservation of water resources and quality) and 4.9 (conservation of areas with high erosion potential).

Our evaluation involves a team of relevant experts providing recommendations for improving the rehabilitation process. Indragiri Hulu Plantation is the location of the study where a preliminary survey evaluates the implementation of the rehabilitation program.

This was conducted with a team of experts from the Bogor Botanical Gardens Conservation Center - LIPI to obtain an overview of the program's implementation and establish a baseline for plant diversity in the rehabilitation area (http://www.astra-agro.co.id/wp-content/uploads/2019/02/Progress-report-Q3-Q4-2018.pdf).

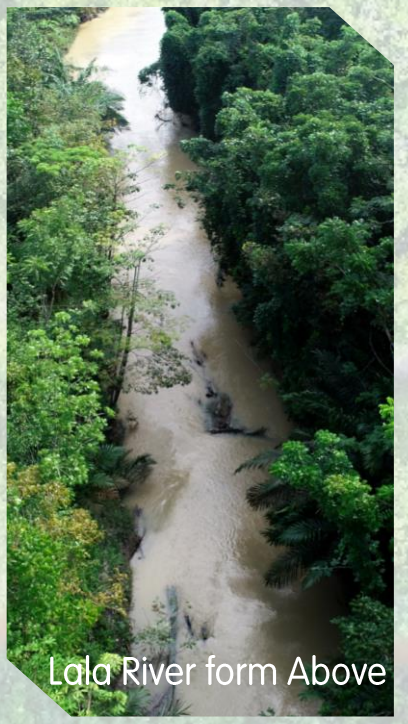
RIPARIAN FOREST REHABILITATION EXPERT REVIEW

From the results of the preliminary study, the team of experts assessed that the initial step taken by the company through of the planting fast growing tree species trees in the riparian rehabilitation area was the right step. The planting will result in a microclimate and can improve soil conditions in the rehabilitation area.


Alstonia scholaris


Blechnum orientale


Clidemia hirta


Lala River form Above

This is illustrated by the presence of plants that grow spontaneously at the level of herbs, shrubs and climbers in the rehabilitation area within a period of five years.

RECOMENDATION

Future Restoration

The recommendation from the experts for the short term is to plant rare and native species, accompanied by the enrichment of undergrowth to stimulate the presence of biodiversity. Some activities to increase the success of rehabilitation conveyed by the experts to be applied in other locations include:

- The planting of fast-growing species needs to be conducted at the beginning of the program so as to improve soil conditions and micro-climates within a short period of time. Next is the planting of local plants and/or rare plants.
- Enrichment must also be done by observing not only horizontal diversity (species diversity), but also vertical diversity (habitus type) so that the plant species planted are not only trees but also shrubs, bushes, and grasses.
- The protection and care of plants from vines and which are also often found strangling rehabilitation plants namely *Mucuna pruriens.*
- Spacing is necessary to regulate overlap between canopies during plant growth.
- The installation of information boards regarding the restoration are and/or the types of plants planted.
- It is also necessary to measure river quality in terms of its water quality, changes in water discharge, sedimentation rates, and so on to assess whether the restoration activities conducted have been able to improve river quality.

Riparian restoration management PT Astra Agro Lestari Tbk.
http://www.astra-agro.co.id/wp-content/uploads/2019/02/Riparian-restoration-project.pdf

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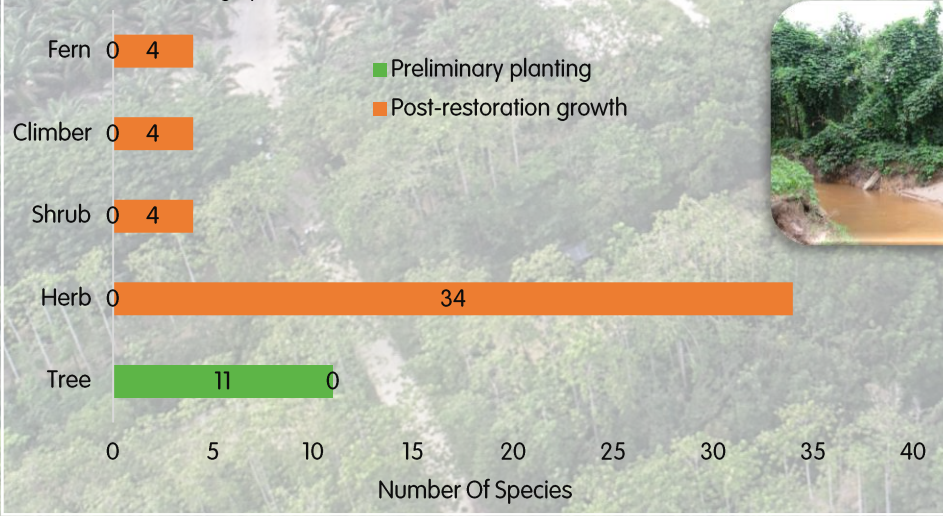
Preliminary Survey of Indragiri Hulu Lala River Rehabilitation Site

The Indragiri Hulu site management unit is a subsidiary of Astra Agro Lestari which conducts riparian rehabilitation activities. Administratively, this site is located in the Lirik District of the Regency of Indragiri Hulu. The Indragiri Hulu Site was established in 1983 and is the oldest in Astra Agro. The plantation is traversed by the Lala River whose stream ends at the Indragiri Hulu River Basin. Rehabilitation efforts in the Lala River have been ongoing since 2014.

No.	Nama	Suku	Tipe tanaman
1	*Acacia mangium Willd.*	Leguminosae	FGS*
2	*Albizia saman (Jacq.) Merr.*	Leguminosae	FGS*
3	*Alstonia pneumatophora Baker ex Den Berger*	Apocynaceae	FGS*
4	*Alstonia scholaris (L.) R. Br.*	Apocynaceae	FGS*
5	*Neolamarckia cadamba (Roxb.) Bosser*	Rubiaceae	FGS*
6	*Swietenia macrophylla King*	Meliaceae	FGS*
7	*Terminalia catappa L.*	Combretaceae	FGS*
8	*Aquilaria malaccensis Lam.*	Thymalaeaceae	Rare & local types
9	*Sandoricum koetjape (Burm.f.) Merr.*	Meliaceae	Rare & local types
10	*Shorea acuminata Dyer*	Dipterocarpaceae	Rare & local types
11	*Shorea guiso Blume*	Dipterocarpaceae	Rare & local types

*FGS = Fast Growing Species



Researchers for the PKT Reintroduction and Restoration of the Botanical Gardens - LIPI revealed that in the Lala River rehabilitation area, 55 plant species were identified from 29 families and 54 genera consisting of 11 species of tree habitus, 34 types of herbs, 4 types of ferns, 4 species of vines and 4 types of shrubs based on the results of random sampling (floristic method). Eleven tree species consisting of 8 types of fast-growing plants and 3 species of native and rare plants. Eight fast-growing plants are planted by the company in the early stages of the restoration program. Other types of plants in herbaceous habitus, ferns, shrubs, and vines grow spontaneously in the restoration area.

Until now, a border of ± 10.66 ha has been planted with several species of wooded4 trees. The Indragiri Hulu Site rehabilitation area is used as an example of the success of the rehabilitation efforts adopted by other subsidiaries.

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