



Ikalahan Ancestral Domain

Mean annual rainfall: 4,000 mm



Trees link to ecosystem services



The Ikalahan Ancestral Domain is an important watershed, a rich biodiversity sanctuary, and a source of various ecosystem services to its immediate and downstream communities. For the Ikalahans, trees are important indicators in determining their community's ecological health. The greater the tree cover and the lesser the barren land, the more ecosystem services are produced in terms of reducing soil and water runoff, increasing water and air quality, improving micro-climate and sequestering carbon.

- The Kalahan Forest Reserve (KFR) within the domain has high flora and fauna diversity

The overall diversity index indicates that the vegetation of KFR has high relative diversity value and evenness. Among the land cover types that are very high in diversity are agroforestry, reforestation and secondary forests. A total of 286 species of vascular plants were recorded belonging to 75 families. Eight species of which are critically endangered in the IUCN Red lists. KFR has also rich bird species and other wildlife species.

Table 1. Relative values of diversity and evenness by land use types

Land Use Type	Indices			
	H'	Relative Values	E _s	Relative Values
Secondary Forest	3.13	High	0.71	High
Reforestation	3.62	Very High	0.76	Very High
Grassland	3.74	Very High	0.85	Very High
Agroforestry	3.54	Very High	0.72	High
Agriculture	3.21	High	0.73	High

Table 2. Total vertebrates in KFR

Taxon	Mammals	Birds	Reptiles	Amphibians	Total
Family	10	28	7	4	49
Genera	22	40	14	4	80
Species	23	42	14	6	85

Source: Villamor, GB, et al. 2010. Rapid Agro-Biodiversity Appraisal (RABA), Kalahan, Nueva Viscaya, Philippines. Draft Report. World Agroforestry Center (ICRAF).

- Based on the Kalahan's Educational Foundation (KEF) monitoring from 1989 to 2003, the KFR has great potential for carbon storage and sequestration

It was estimated that the total carbon stock was approximately 375.8Gg in 1994 and 452.1Gg in 2003 or 21% increase in 9 years. This may be due to the increase of old pine and reforestation areas and the decrease of agriculture areas.

Table 3. Carbon densities based of biomass monitoring plots of KFR

Landuse	1994 C density (Mg/ha)	2003 C density (Mg/ha)
Agriculture	14.73	21.40
Forest	9.34	12.89
Secondary forest	17.95	25.52
Old Pine	13.66	19.87
Pine	14.81	19.91
Rice field	6.86	9.49
Mahogany*	13.86	21.07

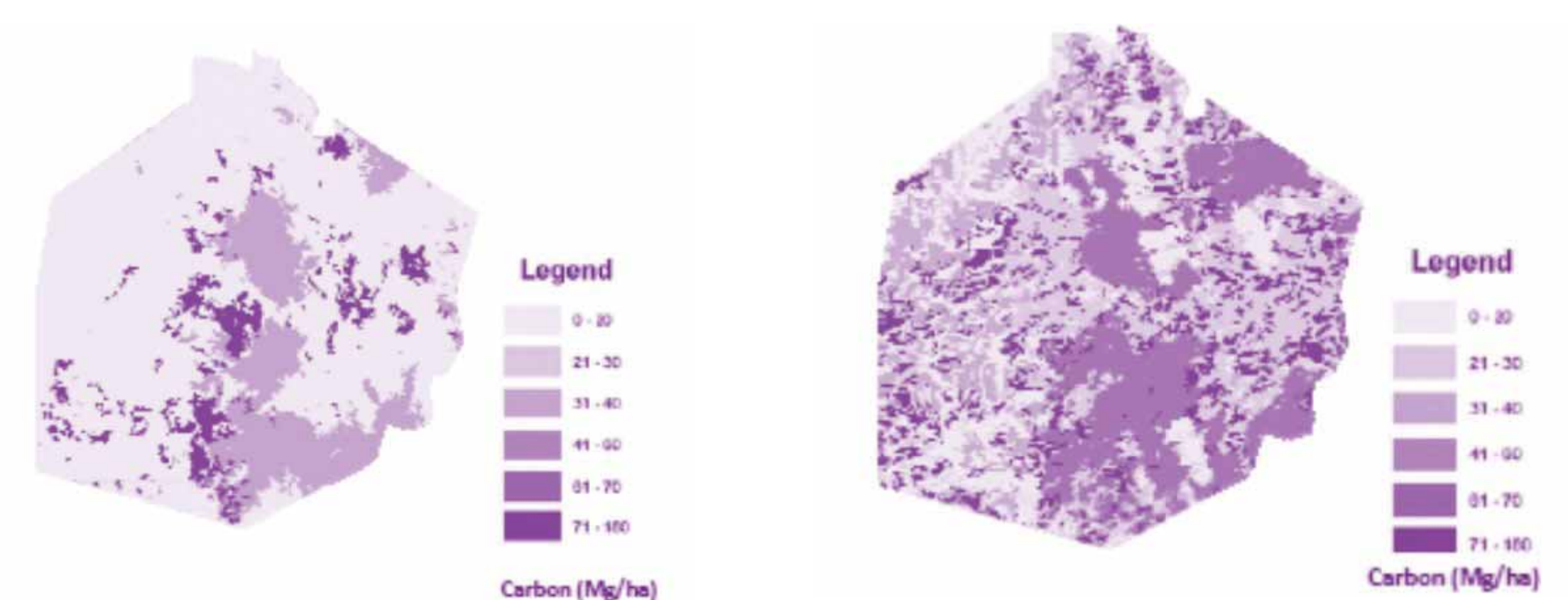


Figure 1. Distribution of land-cover derived carbon density in KFR in 1989 (L) and 2001 (R).

Source: Villamor, G.B., Pampolina N, Forcadilla R, Bugtong N, Alano J, Rice D, Omas T, Castillo R, Pulan D.2010. Rapid Carbon Stock Assessment (RaCSA), Kalahan, Nueva Viscaya Philippines. Working Paper 106. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Program. 87 p.

KFR has great potential in mitigating climate change because it has the capacity to store substantial amount of carbon. A recent study showed the total forestland of KFR with an area of 5087 ha holds a total of 472,797.26 Mg of carbon. Carbon storage in the area is expected to significantly increase with the initiative of the USAID funded project "Mainstreaming Climate Change in Biodiversity Planning and Conservation in the Philippines". Part of this recently concluded project was the restoration of approximately 260 ha of forestlands with valuable and native plant species.

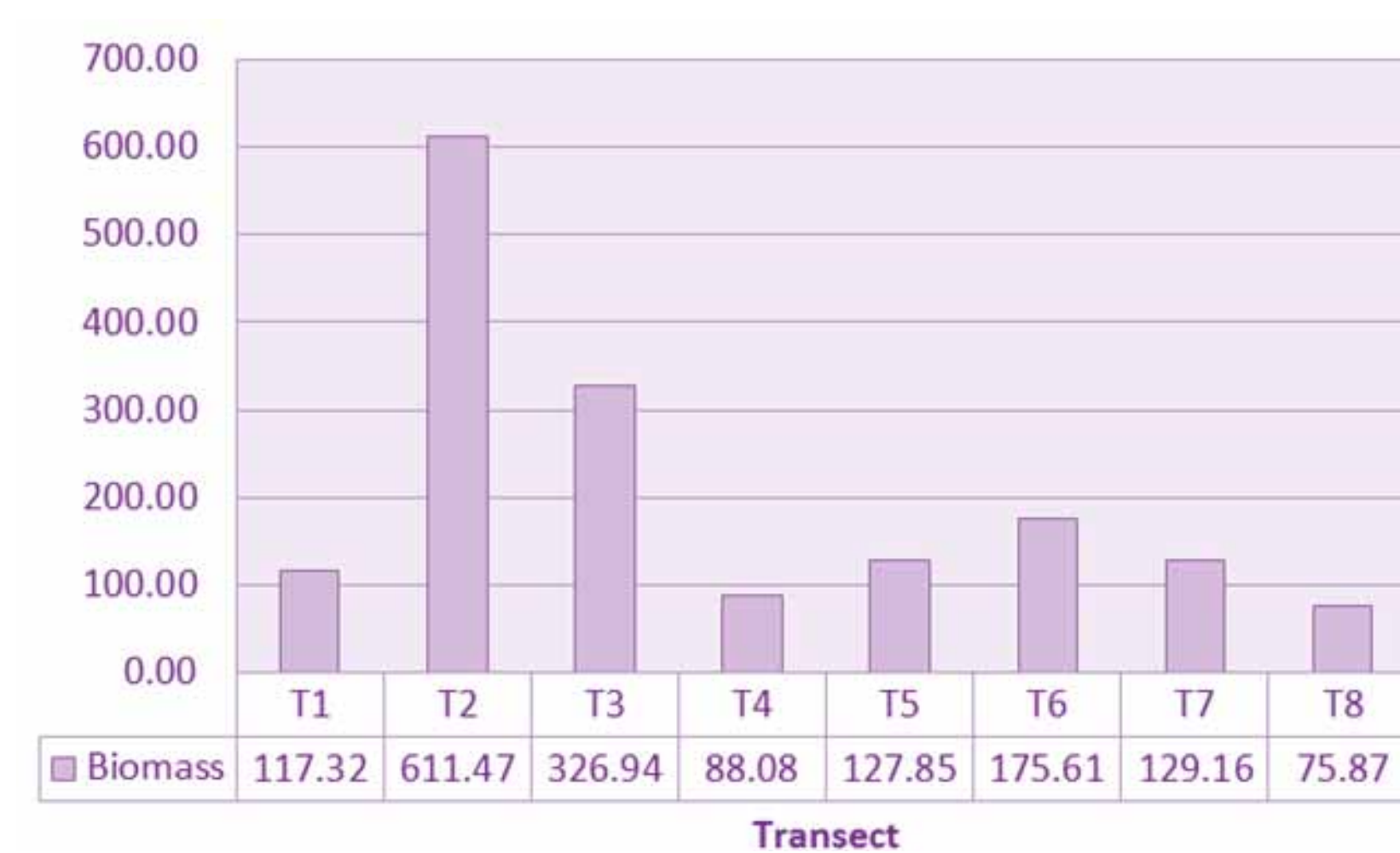


Figure 2. Biomass densities of the eight transects in forestland of KFR

Source: Pulhin FB, AM Torres, RD Lasco and NM Pampolina. 2013. Aboveground Carbon Stocks Assessment of the Kalahan Forest Reserve. To be published.

In 2012, a project idea note was developed for presentation to carbon buyers. It was created through the 'Connecting Ikalahan to the voluntary Carbon Market' project, funded by the Food and Agriculture Organization of the United Nations. A number of potential buyers showed interest in the forestry carbon project after the environmental services market fair held in Manila.

- Within the domain are also three important river systems that serve as irrigation and drinking water sources for downstream communities. Negotiations with a hydroelectric company to build a power plant in Kalahan began in 2012.



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