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Signifying the End of Swidden? An Analysis of Vocabulary of the Fallow Stage Among a Kalimantan Indigenous Group, Indonesia

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ABSTRACT

This study examines how the Dayak Tunjung community in East Kalimantan, Indonesia, employs linguistic classifications to structure and transmit ecological knowledge within a traditional swidden agricultural system. It focuses on the vocabulary used to denote fallow stages and analyzes how generational shifts in language use reflect broader socio-ecological transformations. Data were collected through 16 semi-structured interviews and participant observation in Linggang Melapeh Village, stratified by age and occupation to capture intergenerational dynamics. The findings reveal that older generations retain a detailed lexicon tied to ecological succession and customary land practices, while younger members increasingly adopt shortened fallow cycles and show a declining familiarity with traditional terms. These patterns indicate a process of biocultural erosion, wherein linguistic attrition parallels the restructuring of ecological relationships under the pressures of land commodification and shifting livelihood strategies. The study highlights the need to revitalize Indigenous ecological narratives and safeguard linguistic diversity as critical components of cultural and environmental sustainability. Furthermore, it calls for decolonizing conservation frameworks to recognize and empower Indigenous governance systems. Integrative efforts involving education, participatory mapping, and culturally grounded policy interventions are recommended to sustain the ecological and linguistic heritage of the Dayak Tunjung community.

KEYWORDS

Ecolinguistics; Fallow vocabulary; Dayak Tunjung; Swidden agriculture; Biocultural erosion; East Kalimantan.

1. INTRODUCTION

The shifting dynamics of Indigenous swidden agriculture in Southeast Asia have become increasingly complex in recent decades, with rapid land-use transformations contributing to the erosion of ecological knowledge and cultural practices (Cramb et al., 2009; Cairns, 2015). In East Kalimantan, Indonesia, the Dayak Tunjung, a sub-ethnic Dayak group, have historically practiced a rotational farming system that embeds forest conservation within customary land classification and oral traditions. However, the recent rise of monocrop plantations, mining activities, and the commodification of land has accelerated the decline of traditional swidden practices and the linguistic markers associated with them.

Moreover, the marginalization of swidden agriculture among the Dayak Tunjung community reflects broader structural forces, notably the persistence of colonial conservation ideologies (Domínguez & Luoma, 2020) and the discursive erosion of ecological values embedded in Indigenous vocabularies (Stibbe, 2013). Ecolinguistic analysis highlights how language shifts can parallel environmental degradation by undermining the relationships of respect, care, and reciprocity with nature.

This paper explores the vocabulary used by Dayak Tunjung to classify fallow stages and analyzes how these linguistic forms reflect ecological ideologies and social

organization. The study situates these vocabularies within broader frameworks of ecolinguistics, particularly the role of language in shaping human-environment relationships. As linguistic practices shift, so does the cultural logic that sustains ecological stewardship. We argue that the disappearance of specific fallow-related vocabulary among the younger generation signals not merely linguistic loss, but the transformation of an entire epistemological framework.

From a theoretical standpoint, this study draws on Fowler et al.'s (1979) and Fowler's (1991) concept of ideological discourse, which understands language as a semiotic system that organizes social reality and reproduces values. This is closely linked to Duranti's (1997) notion of indexicality, in which linguistic forms point beyond themselves to invoke social relationships, ecological stages, and moral obligations. The theoretical positioning of this research lies at the intersection of ecolinguistics and anthropological linguistics, where language is not merely a tool for communication but a repository of environmental ethics, encoded through culturally specific semiotic systems (Stibbe, 2021; Steffensen & Fill, 2017).

While many studies have examined swidden transitions from agronomic or policy perspectives (Fox et al., 2009; Nguyen et al., 2022), fewer have focused on the linguistic dimensions of land-use change. By documenting and analyzing the vocabulary of fallow stages among the Dayak Tunjung, this paper seeks to fill that gap.

How long will the swidden system last in East Kalimantan? This question may imply bad news for the forest cycle and a threat to the continuity of Dayak culture in East Kalimantan. Indeed, swidden agriculture has so far provided opportunities for the formation of secondary forest succession while protecting primary forest encroachment in East Kalimantan (Gunawan et al, 1998; Setyawan, 2010). The shrinking of forest size in East Kalimantan is also attributed to increasing mining operations (Ramadhany, 2023) and the conversion of land to oil palm plantations (Barri et al., 2018). The provincial Plantation Office reported that by the end of 2017, the oil palm plantations had covered more than 1,2 million hectares (Dinas Perkebunan Kaltim, 2018). Moreover, due to oil palm expansion, the province has lost 121,840 hectares from 2019 to 2021 (Nurrohman, 2024). In addition, mining permits in the province are swelling, with around 5,2 million hectares having been contracted as concessions to coal mining companies alone (Yulianingrum et al., 2023). Meaning, around 40% of the total province's land has become a coal mining concession.

Dayak people cannot be separated from the forest. Their civilization originates from the forest (Uluk et al., 2001). All aspects of Dayak life originate from the forest. For the Dayak, the forest resembles a mall that provides all their needs, and pharmacies that are ready to serve 24 hours a day. Everything is available in the forest, from clothing, food, to medicine (Tisen, 2004; Mulyani, 2022). The Dayak also views forests as an integral part of their culture, and preserving forests is seen as a means of preserving their culture. Indeed, the group's existence depends on the forest: if the forest runs out, they could lose their traditions and customs (Mulyani, 2022). This condition is also experienced by several other Dayak sub-ethnic groups in Kalimantan (Uluk et al., 2001), including the Dayak Tunjung, the focus of this study.

Moreover, forests can be seen as a unifying space for various Dayak sub-ethnic groups in Kalimantan. An ecolinguistic study revealed that the Kenyah and Punan are two Dayak sub-ethnic groups with distinct cultures and languages. Yet, they share vocabulary related to hunting and other forest activities (Rijal, 2016). This finding suggests that the forest serves as both a unifying symbol and a distinctive characteristic of the Dayak people.

The Dayak Kenyah speaking communities are spread across the Regencies of Malinau, Bulungan, as well as in the Village of Budaya Pampang on the outskirts of the

City of Samarinda. Meanwhile, groups that speak Dayak Punan are scattered in the Regencies of Malinau, Bulungan, Berau, and Mahakam Ulu (See Map 1).

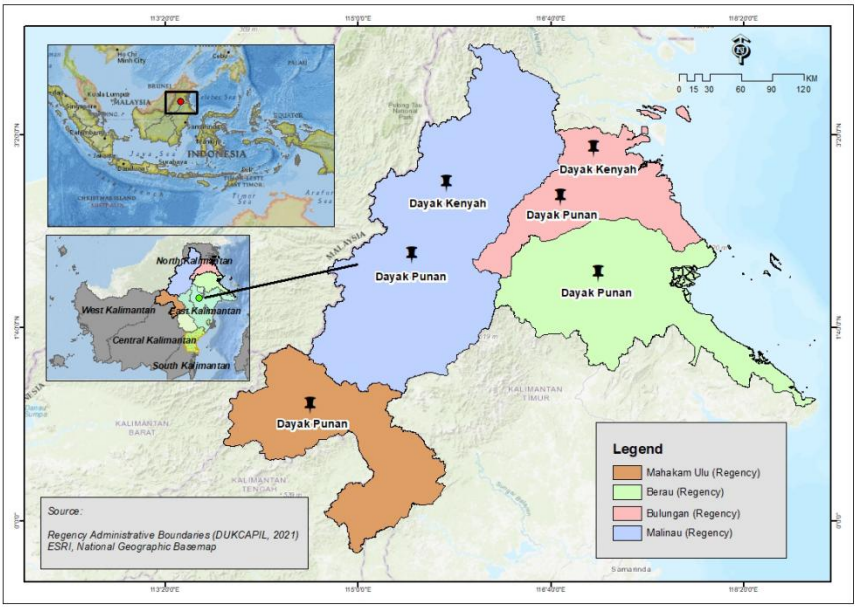

Figure 1. Distribution of Dayak Kenyah and Dayak Punan speaking groups.

Dayak's close relationship with nature is one of the keys to the continuity and preservation of forests in East Kalimantan, which is clearly illustrated in the speech culture or oral traditions of the Dayak. For example, in the *hudoq* ritual, Dayaks send messages in two directions, namely to God and to the inhabitants of the earth (Widowati & Wulandari, 2022). The core message in the speech suggests that there will be peace and prosperity on earth (Krekel & Prati, 2021), allowing humans and natural surroundings to remain sustainable (Tian et al., 2022). Putri et al. (2023) demonstrated that Dayak always tries to maintain harmonious relations with the universe. For traditional communities, protecting and caring for nature, including forests, cannot be achieved solely through technical knowledge and skills, but needs to be supported by values that are articulated in cultural symbols to preserve forests (Akhmar et al., 2022). As the Dayak still strictly apply their customary laws, this is very helpful in the process of forest conservation.

One of the controversial cultural activities in Dayak society is the swidden agriculture system. The dominant discourse in Indonesia, even Southeast Asia generally, views swidden agriculture as destructive to forests, as the process entails clearing land or forests by cutting, burning, and planting rice, before moving to new land (Dove, 2015; Dove, 1983; Fox, 2000). However, the process of farming by moving from place to place is actually considered an agricultural system that can maintain forest sustainability (Gunawan et al., 1998).

Swidden is an appropriate agricultural system to maintain the forest cycle in Kalimantan (Gunawan et al., 1998). Indeed, Dayak rejects the naming of this practice as 'shifting' cultivation, which they understand as the unregulated movement of cultivation from one place to another (Iskandar & Ginanjar, 2002). Instead, they prefer to call it "rotational farming" ("*perladangan berputar*"), which means rotating the swidden at certain sets of plots, with which they always circle back to the plot they start

with (Gunawan et al., 1998). Each Dayak family, on average, cultivates 1 - 1.5 ha of land per year (Iskandar & Ginanjar, 2002). According to them, the rotation system differs from the mainstream understanding of swidden. In the rotation system, the arable land is determined by customary regulations. The system cultivates a plot of land for two to three years before moving to another, and it takes a 20 to 30-year cycle before cultivation returns to the same fallow field, by which time it has turned into a new secondary forest. This is done to maintain the level of soil fertility because Dayak farming does not use chemical fertilizers. Instead, they use organic fertilizer from burning leaves and twigs on the cultivated field (Gunawan et al., 1998).

Geographically, the Dayak cannot implement a monoculture and sedentary rice farming system as a whole. Wet rice cultivation is typically limited to areas with a slightly swampy topography (Samsoedin et al., 2010). Agriculture with a sedentary system, such as wet rice farming, can actually cause permanent damage to forests. Rice field farming gives limited opportunities for the environment to regenerate. The wet rice farming (*sawah*), a sedentary system, only focuses on certain areas for multiple years, even decades, thereby closing the opportunity for the development of other flora species to grow together with other species.

One of the Dayak's traditional practices for maintaining forests can be observed in the variation in vocabulary used to distinguish the type and age of fallows that have been used for swidden cultivation. This concept of naming and classifying fallow based on age has been applied for generations by the Dayak Benuaq and Tunjung in West Kutai Regency and the Dayak Bahau in Mahakam Ulu Regency, East Kalimantan. Naming fallow land types by age, from 2 to 10, 20, 30, and 50 years old, or even up to 100 years old, indicates that there is a tradition of forest conservation in the Dayak culture. This practice, as we will see, is guided by customary regulations regarding the type and age of fallow to be cultivated for growing rice. This regulation is still adhered to today, and linguistic evidence can be traced through the names of these fallow lands based on various criteria.

The vocabulary used by the Dayak people to differentiate between fallow types is a linguistic reflection of Dayak culture. According to Kramsch (2000), the construction and reconstruction of language signs is a way for language users to control and care for their environment. Language symbols basically describe the treatment of nature as a process of interaction, encompassing interactions with fellow humans. Foley (1997) also maintains that patterns of use and non-use of words in one language, in this context, the use of different terms for fallows based on the age of the land, is a linguistic symbol that shows how the Dayak society has deep rooted knowledge of the forest.

This research originally started from eco-linguistic research. According to Zhou (2021), the birth of eco-linguistics cannot be separated from the ecological needs, especially the ecological crisis that increasingly haunts the world's population. This is due to the fact that ecological identity is not formed innately in every human being but is based on the development of discourse about a particular environment (Lei, 2021).

One of the most formidable challenges the indigenous peoples currently is the extinction of local languages. The extinction of vocabulary in one language can be an initial indication of the loss of a cultural object in a society. Language is also an essential global heritage, equivalent to heritage such as flora and fauna (Pérez, 2015). In fact, language, flora, and fauna are interdependent because they also provide vocabulary: extinction of certain flora and fauna will most likely mean the loss of vocabulary that refers to them. Language is an element that forms and is shaped by social praxis, including all aspects of the environment around the speakers of the language (Steffensen, 2007).

Language and social actions are closely related, and the dialectic between the two applies to all human actions in their natural surroundings. Setyawan (2010) recognizes that local knowledge in a society is the accumulation of human knowledge about the universe, which is reflected in the language, organization, values, and laws of that society. This knowledge, known as traditional ecological knowledge (TEK), is traditionally transmitted from one generation to another (Berkes, 2008). Similarly, the Dayak Tunjung knowledge, which periodically classifies the names of fallow lands to indicate, among others, the level of land fertility, is still being transmitted to current generations.

The relationship between the way the Dayak Tunjung name the fallow and their cognitive system about the environment can be seen more critically with Roger Fowler's concept of discourse. Essentially, Fowler views language as a text used by society as a classification system to control and organize experiences in social reality (Eriyanto, 2011; Fowler et al., 1979). This discourse is often applied to media texts critically, but here we employ Fowler's theory to examine a different type of text (the Dayak Tunjung language) in an environmental discourse.

Viewed in this light, the classification of fallow ages with different names in the Dayak Tunjung can be seen beyond their role as a technical text or an ordinary language event. Instead, this classification reveals the presence of specific ideological practices within the lives of the Dayak communities. However, we recognize that the ideological practices of the Tunjung Dayak are increasingly shifting. Cognitively, this knowledge is still stored in the memories of the Tunjung Dayak people, but in many instances, they can no longer practice the system. Therefore, we aim to observe and determine the shift in the ideological practices of the Tunjung Dayak people in cultivating and using their land, which implies that the shifting cultivation system has the potential to slowly disappear.

2. METHODS

This study employed a qualitative ethnolinguistic approach, combining semi-structured interviews, participant observation, and linguistic data elicitation. The research was conducted in Linggang Melapeh Village, West Kutai Regency, East Kalimantan, between April and November 2023. The site was selected purposively due to the Dayak Tunjung community's ongoing use of swidden agriculture and observable shifts in linguistic practices related to fallow classification.

2.1 Participants and data collection

Data were collected from 16 informants, stratified by age and farming activity. These included: (1) 6 elder informants (aged 45–70) who actively practice swidden agriculture and are regarded as knowledge holders. (2) 4 adult farmers (aged 31–44) who combine traditional farming with cash crop cultivation. (3) 6 younger individuals (aged 20–30), divided equally between those who continue to farm and those engaged in formal employment.

Participant selection was based on snowball sampling initiated through contacts with customary leaders, ensuring representation across generational and occupational lines. Informed verbal consent was obtained from all participants. Semi-structured interviews focused on terminology, meanings, and the use of vocabulary relating to the fallow stages. In addition to in-person interviews, WhatsApp chat-based interviews were conducted with four younger participants who had migrated to urban centers.

2.2 Observation and triangulation

Participant observation was conducted during farming cycles and community meetings. Field notes were kept to document terminology used in context. Observations were conducted over a span of 45 cumulative days. The triangulation of data involved comparing: (1) Terminological responses across age groups. (2) Interview data with observed use of terms. (3) Elicited terms with those recorded in earlier studies. Manual coding of transcripts was performed using thematic categories.

2.3 Ethical considerations and validation

The research followed ethical guidelines for community-based linguistic fieldwork. Findings were shared in feedback sessions with key informants and customary leaders, serving as a form of member-checking.

This paper was stimulated by a series of extensive previous research on several Dayak language vocabularies related to the natural environment. One set of vocabulary found was the difference in fallow names based on the age of the land that had previously been planted with rice. The fallow naming system was then analyzed qualitatively to examine the social practices of the Dayak Tunjung, especially in the concept of managing and caring for forests. The Dayak people's treatment of the natural surroundings is reminiscent of the concept developed by Duranti (1997) regarding performance, indexicality, and participation.

This research places more emphasis on collecting data at the level of meaning through observation and in-depth interviews (Mears, 2012). Researchers in this field play a strategic role, as the primary tool of their research, they utilize additional equipment such as cameras and voice recorders to support documentation (Mardawani, 2020).

This study emphasizes the importance of selecting a location and describing it as a crucial aspect (Correa & Owens, 2010), a primary requirement in ethnographic research (Duranti, 1997) that often involves cultural products as research objects. As we delve into traditional agricultural practices and forest management, we pay attention to how the Dayak in East Kalimantan spread across several regencies with various sub-ethnic groups but follow a relatively similar pattern of settlement. The most notable characteristic of Dayak villages is that they live far from crowds or city centers, closer to the interior (forests), and always follow the flow of rivers as a source of livelihood and transportation medium. Dayak people consider areas with physical characteristics like this to be forest areas. In Pampang Village, Samarinda City, one can find a settlement of Dayak Kenyah (Rijal, 2020). In Sungai Bawang Village, Kutai Kartanegara, groups of Dayak Kenyah Lepo Jalan (Imang, 2020). In Nehas Liah Bing Village, East Kutai, there is the Wehea Dayak group (Widowati & Wulandari, 2022). The Benuaq Dayak (Wardani et al., 2018) and Tunjung Dayak groups inhabit West Kutai (Siahaya et al., 2016). While the Dayak Bahau groups live in the Regency of Mahakam Ulu (Ghafur, 2021). The largest concentration of the Dayak can be found in the Regency of West Kutai and Mahakam Ulu. In other districts, the Dayak tribe lives in colonies, building villages on the outskirts of cities and near forests, and usually following the river flows (Gunawan et al., 1998).

The research is focused on the Dayak Tunjung, one of the Dayak groups in West Kutai Regency, East Kalimantan Province, Indonesia. Dayak Tunjung lives in areas that allow them to cultivate crops, hunt, fish, and look for other forest products. The areas surrounding the village of Linggang Melapeh enable the Dayang Tunjung to conduct all of these activities, which are common among the Dayak groups. Linggang Melapeh features lakes, rivers, as well as protected and customary forests, and surrounding the village, agroforestry is developed with rubber, cocoa, and oil palm trees. This group is

among the Dayak sub-ethnic groups that continue to engage in agricultural activities, while also adhering to traditional rules to determine the location of agricultural land. By custom, they obey the customary laws that apply in their territory.

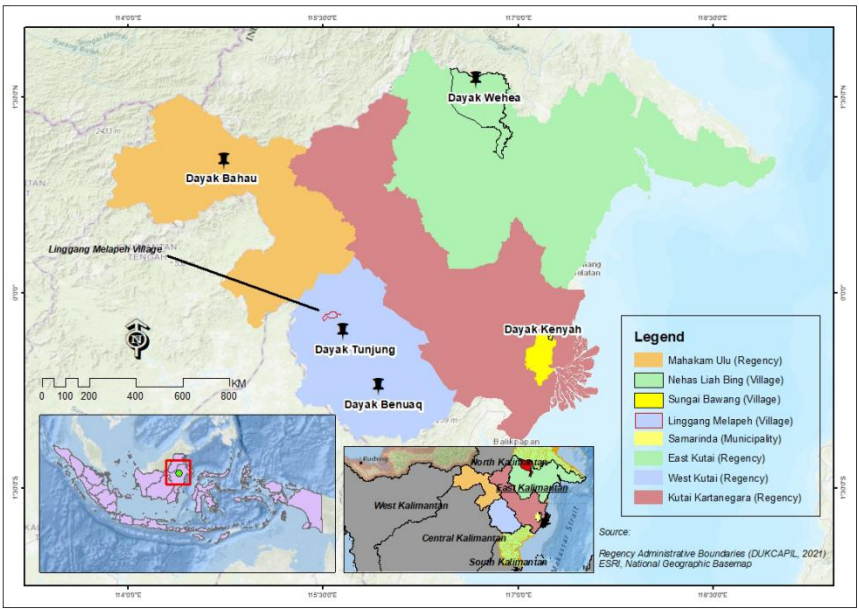

Figure 2. Distribution of groups speaking Dayak Bahau, Tunjung, Benuaq, Kenyah, and Wehea.

Data collection was conducted from April to November 2023. Data on the terms or names for fallow levels acquired from the Dayak Tunjung language who live in the Village of Linggang Melapeh, West Kutai Regency, East Kalimantan. Collecting linguistic data, we carried out interviews with the traditional leader of the Dayak Tunjung in Linggang Melapeh. Some of the data is also being confirmed for its use by the Dayak Tunjung members who actively farm on a rotational basis.

Data comparison is carried out through interviews with several informants aged between 20 to 30 years, representing the younger generation of Linggang Melapeh Village. The younger generation is divided into two groups, namely those who still understand traditional agricultural systems and those who are less familiar with that. Because these younger informants are familiar with social media, some of the data was obtained through chat communication on WhatsApp. Until mid-2024, communication and data gathering were carried out via the WhatsApp message service to match the findings of several secondary data sources from previous research.

The data collected in the form of Dayak language vocabularies and those related to traditional agricultural systems at the location are then analyzed using descriptive-dialectical techniques. This technique involves examining ideas and concepts from opposing viewpoints. The concept in question is that there are differing views on the positive and negative aspects of the shifting cultivation system. This concept is then supported by data and theory, providing a synthesis of the changes that occur in the land management system of the Dayak Tunjung community.

3. RESULTS

The Dayak Tunjung of West Kutai Regency has long understood the differences in the types of fallows used for agricultural cultivation in their region. Knowledge of the

rotational farming system is passed down through generations. As an agricultural society, the Dayak Tunjung has incorporated dry field cultivation as part of their culture. In fact, several Dayak communities on the increasingly dense outskirts of Samarinda City still cultivate rice fields as a cultural requirement. This is true despite the distance and location, which would allow the Dayak to buy cheap rice with various choices. This indicates that planting rice for the Dayak, apart from being self-sufficient in food, also aims to continue carrying out some of their customs, which culturally involve the agricultural process as a cultural object. This is illustrated in the use of vocabulary by the Dayak Tunjung using differences based on the age classification of fallow land.

The classification most commonly understood by the Dayak Tunjung is to divide four types of land or forest used for farming, namely *umaq taont* (land under cultivation), *uraat* (2-3 years fallow), *batang pelgaq* (5-10 years), and *hemaq* (20 years and more). In addition, the Dayak groups in the West Kutai Regency also classify land based on the level of soil fertility, namely *kurat uraq* (young layer), *kurat tuhaq* (old layer), *kurat* young stem (young secondary layer), *kurat* stem *tuhaq* (old secondary forest), and *bengkar* (primary forest over 100 years old) (Rahmawati, 2015:109).

The classification of these fallow types under different names indicates that forest maintenance efforts are integrated with the indigenous culture and customary regulations. With the name of a fallow that is up to 30 years old or even 100 years old (*bengkar*), it means that the Dayak Tunjung also have a culture of nurturing and guarding the forests until they reach 30 or 100 years old. The vocabulary *hemaaq* and *bengkar* are indices provided by speakers of the Dayak Tunjung language to name entities in the form of dense forests filled with large trees. This demonstrates that vocabulary can serve to classify something in a discourse (Fowler, 1991).

The Dayak Tunjung community performs rice cultivation work in combination with other activities, they till the land not as a job or profession. They cultivate dry rice fields while tapping rubber trees, tending to and harvesting oil palms, and planting some coffee, in addition to non-agricultural businesses. Most people over 40 years old in Linggang Melapeh, however, understand the terms that classify the fallow ages. For instance, MM, YS, and AP (male farmers, 57 to 62 years old), who are part of the coffee farmer group, are able to mention the four terms that classify the fallows: *umaq taont, uraat, batang pelgaq,* and *hemaaq.* They cultivate coffee while engaging in swidden agriculture on an annual basis.

In people who are exclusively involved in other occupations, such as company workers. They are able to mention the terms since they are still involved less intensively in annual swidden. They, however, acknowledge that the fallows are no longer reaching the *hemaaq* stage, and most are only reaching the *uraat*, meaning that most fallows are only left for around three years before being cleared for cultivation. According to YS (male, 67 years), the traditional leader in Linggang Melapeh, the local people are tending to shift to perennial trees such as rubber due to the shrinking alternatives for cash income. This certainly reduces the fallow lands for the seasonal rice cultivation. Moreover, the local expansion of rubber cultivation creates more distance to the swidden fields, since the rubber is mostly planted near the settlements. Several local villagers mentioned that they are constructing a new road manually by clearing mature forest (*bengkar*) to be able to reach the swidden fields, as rice cultivation is part of their tradition and has to be conducted each year (HM, male, 52).

3.1 Dayak Tunjung's fallow classification

The Dayak Tunjung is culturally very similar to the Dayak Benuaq group, much of their vocabulary is similar and even the same (Smith & Rama, 2022). Of course, this is due to the proximity of areas where these two groups live, in the West Kutai Regency. As an

agriculturalist group that prioritizes dry field cultivation as a source of food, the Dayak Tunjung know the classification of fallows based on their age. This classification is illustrated in Table 1 below.

Table 1. Classification of Forest Names for the Dayak Tunjung Tribe

Name Land	Etymological meaning	Land Age
umaq taont	cultivated land	land under cultivation
uraat	field/land	2 - 3 years
batangk pelgaq	old land	5 - 10 years
hemaaq	jungle	20 years and above

3.1.1 Umaq taont

Dayak Tunjung calls the land or fields that are currently cultivated as *umaq taont*. In Indonesian terms, this dry field cultivation is called *huma*. The dry field cultivation for the Dayak Tunjung is more appropriate using the huma system because the topography of the forest area in East Kalimantan is dominated by low hills. People generally plant rice on hillsides. It is scarce for agricultural land to be located on flat land (see Figure 1 below), and more often, areas like these are used for residential purposes, as agriculture can be easily threatened by domesticated animals and other pests.

Figure 3. A newly cultivated field

Umaq taont for the Dayak Tunjung community is the first phase of fallow land, after being planted with rice. *Umaq taont* is a fallow of approximately a year after harvest. After the rice harvest, the local farmers continue to supervise the umaq taont, as the land is naturally rich in vegetable plants that have developed from food remains disposed around the field during the cultivation period. The plants that grow in *umaq taont* generally still dominate the area, with growing shrubs still prevalent. The fallow has begun to grow a mix of plants with various types. Usually, leftover food grains from rice harvesting grow along with grass and other plants. Sometimes, other crops such as cassava, papaya, taro, eggplant, and chili also grow on their own. The variety of plants

in *umaq taont* is largely determined by the type of food and vegetables the land owner brings during harvest. Typically, leftover fruit and vegetables are discarded or left on the ground after meals. Therefore, one can often find plants with tall stems, such as mango, jackfruit, and guava. However, this kind of plant is not yet clearly visible in the *umaq taont* phase because they are around 1 year old. Apart from that, the plants that grow after the rice harvest are also deliberately planted by the landowner. The local farmers hope that for several months after the rice harvest, they can still harvest vegetables, and that several years later, various types of fruit trees will grow and can be harvested by landowners.

3.1.2 Uraat

Cultivated land that has been abandoned for 2 to 3 years is referred to as *uraat* by the Dayak Tunjung. Even though the Dayak Benuaq and Tunjung use slightly different vocabularies to classify and name the 2- to 3-year-old fallows, the fallow vegetation still shows the same conditions.

Figure 4. Former field and its hut

Figure 5. A 2–3-year-old fallow land

Uraat is the Dayak Tunjung name for two to three-year-old fallow land. This land is starting to look like the bushes are getting taller. At this stage, most vegetable crops can no longer be harvested. In fact, these shrubs are increasingly being covered by other plants, including wild grasses. Moreover, all activities to intervene in the plants on these lands are subsidized, leaving them with no supervision, and naturally, the tall trees are grown larger. The trees have started to show their trunks, indicating that the process of becoming a new forest has begun to appear.

3.1.3 Batangk pelgaq

Dayak Tunjung calls the 5 to 10-year-old fallow as *batangk pelgaq*. In this fallow vegetation, as shown in Figure 4 below, the plants are starting to look larger. The tall trees already grow into distinct shapes from the surrounding plants. Due to age, *batangk pelgaq* (*batangk* literally means 'field', and *pelgaq* 'old') can be cleared again for a new round of cultivation, but usually they are left intact until the trees grow larger so that the woods can be used for building material. In the *batangk pelgaq*, the trees are left to grow to a mature age so that they can be cut and used for building construction.

Batangk pelgaq vegetation has become increasingly diverse. Only plants with tall stems are able to compete and grow larger. If the land is still frequently visited or simply passed by the owner, usually there are still some small plants left that can be harvested, such as cassava or taro. Forest regeneration is increasingly visible in the *batangk pelgaq* vegetation.

3.1.4 Hemaaq

The final fallow name before being opened for agricultural land is *hemaaq*. *Hemaaq* has larger trees since they are estimated to be over 20 years old. *Hemaaq* can, of course, be opened up as a new agricultural field after going through familial and customary considerations and decision making. Active fields that a family cultivates typically have gone through a cycle of cultivation and fallow into secondary forests, and any plan to clear these lands would be discussed among family members. Meanwhile, when they plan to clear a *hemaaq* that any specific family has not yet used, it would be conferred among the community members.

Figure 6. A 5-year-old fallow land

Figure 7. Vegetation with a Tree Age of 20 Years or More

Figure 8. Plant vegetation on the *hemaaq*

The plant vegetation in *hemaaq* increasingly shows trees that have the potential to grow larger and taller, such as makaranga (*Macaranga sp.*) and palawan (*Lophopetalum pollidium*) with diameters of around 20-30 cm (see also Gunawan et al., 1998). In this phase, not only is the flora developing, but a number of faunas are also increasingly interested in habitating the *hemaaq*. At this age, a fallow can be called a forest for the Dayak Tunjung.

3.2 Forest naming regeneration phase based on soil fertility

Even though forests can provide economic benefits, for the Dayak Tunjung, forests are still seen as part of their belief system and life cycle (Rahmawati, 2015). Forest preservation can provide opportunities for a long-life cycle for the Dayak people. The rotational farming system, for them, needs to be maintained properly so that the forest cycle is maintained. In this way, forest regeneration continues to run well for the Dayak as a whole. This can be seen in Table 2, which lists the names of different forests in each phase that correlate with the level of soil fertility after cultivation, until the land returns to its original state as forest.

Table 2. Forest Naming Regeneration Phase Based on Soil Fertility

Forest Names	Layer Phase
Kurat uraq	Young layer
Kurat tuha	Old layer
Kurat batang muda	Young secondary forest
Kurat batang tuhaq	Old secondary forest
Bengkar	Primary forest

What they rarely mention, however, is the general shrinking of the arable land in the area. The expansion of large plantation and mining operations in the Regency of West Kutai, where the village of Linggang Melapeh is located, has reduced the available arable land that can be used by local swidden farmers. In 2011, the area licensed for mining was 616 hectares, and it swelled to 5,422 ha in 2021. Likewise, in 2011, the plantation area only covered around 2,882 hectares, before shooting up to 54,548 hectares in 2021 (Setiawan et al., 2023). These large operations, together with other developments such as the expansion of towns and protected state forests, are combined to reduce the areas traditionally used for swidden cultivation.

Moreover, a large number of young people (aged 20 to 30 years) in Linggang Melapeh prefer other jobs that they consider suitable for the type of education they acquired during college. According to a male informant (MPI = 24 years), the average youth his age works in the formal sector, such as in government offices and companies. He also said that this causes these young people to have a much less understanding of the traditional farming systems than their parents did. One example of the Tunjung Dayak youth's lack of understanding of agriculture is that they can no longer clearly distinguish the classification of fallows by naming them. This is in line with what was found by Lahajir (2001) that, in general, the younger generation of Tunjung Dayak no longer likes to implement traditional agricultural systems. The younger generation does not even have adequate knowledge about traditional agricultural systems.

The decreasing interest of the younger generation in farming is common to rural and indigenous communities. This condition is apparent in the study locations. There are several reasons. First, the average youth in the area leaves for the city to pursue higher education, and those who succeed in finding a job in the city will not return to their villages. This clearly reduces the number of farmers. After finishing college, some of them return to their hometowns but work in the formal sectors, such as government offices and companies. Second, local young people consider farming a disreputable job, one that brings little to no prestige for them. This sentiment is generally higher for youths with a bachelor's degree or higher.

Young people who still live in the village typically retain an understanding of traditional agricultural systems. In contrast to young people who, after graduating from high school, go straight to the city to pursue higher education, on average, they do not understand the field farming system. This was stated by MPI as a young man who had

gone to the city to receive higher education. He explained, "there are still young people who understand the field farming system, especially those who do not go to the city to continue their education or do not go to college." In addition, young people are usually motivated to learn traditional agricultural methods after getting married and starting a family. MPI also said that “young people who live in villages and after getting married will definitely learn how to farm the land. Maybe because they already have families, so they are trying to understand traditional farming methods." On the contrary, those who migrated to cities, such as MS (male, 23), are losing comprehension of the cultivation system in their village. He recently completed an undergraduate degree in the capital city of the province, Samarinda, and admitted that he is not interested in farming. During his college time away from the village, he chose to spend more time in the city, and even in his rare time back in the village, he did not involve himself in agricultural activities. He chose to work in a coal mine company.

A similar trend was also found among the local female youths. CL (female, 26) also stated that the youth of Linggang Melapeh are no longer understand the agricultural systems, including the classification of the fallow stages. She revealed that she only knows two fallow terms, namely *umaq taont* and *uraat*, and when asked, failed to mention the older fallows, such as *batang pelgaq* and *hemaaq*, saying that she had never heard the terms. Two other female youths, AMW (25) and KIR (23), even only knew one of the terms, that is, the youngest one, *umaq taont*. This is true even when both of them continue to go to the field, helping their parents cultivate their respective lands, especially during the planting and harvesting seasons. Even older local females, such as RY (39), merely know the term for the youngest fallow, citing that her family’s fields are far from her house and can only be reached on foot as the cause of her incomprehension. Finally, those who pursue other occupations are unaware of the fallow system. CR (female, 28) and WH (female, 31), for example, expressed that they do not know anything about cultivating lands, including the fallow stages.

It is clear, however, that the local females who are actively involved in the rice field possess a better understanding of the local fallow system. NL (female, 32), who is still actively involved in cultivation, was able to mention three fallow names: *umaq taont*, *uraat*, and *batang pelgaq*. She responded to the question while manually milling rice in her house with her 68-year-old mother, who was also able to mention the same three terms. The mother added that it is difficult to convince the youths to go to the field, “These kids are more into the handphone, afraid of getting hit by the sun, afraid of its heat.”

4. DISCUSSIONS

4.1 Classification of fallows as environmental control

The classification of fallow with different vocabulary for the Dayak Tunjung community can be seen as evidence of linguistic signs that work to reconstruct their experiences. This vocabulary reflects the Dayak's social and cognitive systems in controlling the forest environment. These linguistic signs illustrate how Dayak Tunjung was and are protecting forests for generations. Importantly, these Indigenous knowledge systems are increasingly endangered, not only by internal socio-economic changes but also by external conservation models rooted in exclusionary, colonial frameworks that disregard Indigenous environmental governance (Domínguez & Luoma, 2020). Therefore, the protection of linguistic diversity is inseparable from decolonizing conservation approaches.

Linguistic signs, in this case differences in fallow names based on their age, can be used to observe how the Dayak maintains forests. The different names for each

particular phase indicate that the Dayak people made efforts to control the land use both spatially and temporally, projecting it into agricultural fields or into forests. The use of language patterns through certain vocabulary is a way for Dayak to disseminate their knowledge to their children and to outside communities about ways and efforts to protect and manage land and forests. Through the classification of fallows, parents teach the next generations about farming methods that avoid overuse and protect the forest. The fallow growth phase, accompanied by names, has become an oral tradition and collective memory for various Dayak groups to protect the forest environment in East Kalimantan.

Moreover, for the Dayak Tunjung, this classification of fallows is a reflection of their ecological needs. Soil conditions in the area require a certain span of time for the process of nutrient recovery. Dividing the fallow based on age can give the land the opportunity to restore its fertility before the land is reprocessed into agricultural fields. Moreover, the fallow phases as an ecological characteristic found in the Tanjung Dayak need vocabularies to name the classification and communicate their ecological characteristics within and outside their group.

The ideological dimension confirms Fowler et al.'s (1979) observation that the classification of text or language indicates the existence of certain ideological practices among the Dayak communities. The classified fallow names were created to control and regulate both the cognitive experience and social reality of the Dayak. The different fallow names are signs used by the Dayak to encode their ideology that the land and forest are part of their life cycle. Integrated with the Dayak's cognitive system, the forests must be maintained and preserved.

According to Stibbe (2013), ecolinguistic approaches evaluate discourses based on their alignment with ecosophical principles—normative ecological philosophies that promote the flourishing of all life forms. In this regard, Dayak Tunjung's traditional vocabulary for fallow stages, such as *uraat*, *batangk pelgaq*, and *hemaaq*, constitutes a form of positive ecological discourse that sustains biodiversity and harmonious land stewardship.

4.2 Shortening the fallow period

The local knowledge of the Dayak Tunjung is still stored in their cognitive system. They know all the fallow periods and their names, indicating that most of them also understand the regeneration phase of soil fertility. However, as of late, the fallow periods are increasingly shortened. This seems to be shortening consistently over time. Our own study, conducted in 2024, reveals a very significant shortening of the fallow period, down to only 2 to 3 years. The increasing shortening of the fallow periods mirrors a broader restructuring of ecological relationships that is symptomatic of biocultural erosion. This process resonates with the critiques raised by Domínguez & Luoma (2020), who highlight that conservation models not grounded in Indigenous rights contribute to the dismantling of traditional socio-ecological practices.

This condition illustrates the shortening of the fallow period among the Dayak Tunjung residing in Eastern Kalimantan, which has occurred at least since the 2000s. Although not all swidden lands are experiencing shortening, taken as a whole, it will slowly eliminate swidden agriculture in the villages where the Dayak Tunjung live. The Dayak community no longer has an abundance of land to cultivate on a rotating basis. Their swidden agricultural land is shrinking. This trend may lead to the demise of swidden agriculture in the area. This condition is further strengthened by the trend of people planting perennial tree crops, such as rubber, palm oil, and cocoa (agroforestry) on their agricultural land. This means that swidden agriculture in the area will transform into a sedentary farming system. Similar conditions also occurred in Phu Yen,

Vietnam, when the local farmers changed their crops to forest plants that are considered more “productive” (Dang & Trung, 2022).

As the Dayak people's needs increase, it is likely that they will prefer to plant more perennial cash crops on their fallow lands. Rubber, palm oil, and cocoa are more economically promising because of their high selling value. Meanwhile, their need for more money is stimulated by the ever-increasing needs for modern consumer and production goods. Traditional agriculture, however, is still maintained on a small scale, as rice cultivation on dry land is an integral part of the Dayak Tunjung culture.

As a text, the dictions of rubber, palm oil, and cocoa are a discourse that is starting to emerge in the ecology of the Tunjung Dayak community. Diction has become part of community activities, thus forming an influence on social practices. As Steffensen said, language both shapes and is shaped by social praxis. Likewise, the dictions of rubber, palm oil, and cocoa will slowly enter the cognitive and ideological space of the Tunjung Dayak communities. If this continues, the next social practice will be the reduction of swidden lands, and the traditional practice of shifting cultivation will slowly disappear.

The reduction and disappearance of traditional ecological vocabularies among younger generations represent a form of "discursive erasure" (Stibbe, 2013), where important ecological knowledge is linguistically marginalized, accelerating both cultural and environmental loss.

4.3 Decreasing interest of the young generation in agriculture

There are two things that prevent the young generation of Tunjung Dayak from properly understanding the traditional cultivation system. First, some of them did not have time to study with their parents because they continued their higher education in the city. Tunjung Dayak youths who have received higher education, on average, work in the formal sector, such as in government offices and private companies. Working in the formal sector means that Tunjung Dayak youth have much less time to work on agricultural land. Second, some Tunjung Dayak youth view agriculture as a low job, which discourages them from taking an interest in working on agricultural land.

This condition further reduces the number of farmers among the Tunjung Dayak. The jobs chosen by Dayak Tunjung youth are jobs that give them little opportunity to learn about traditional agriculture. By moving away from agriculture, the new generation of Dayak Tunjung may contribute to the discontinuation of the knowledge system of Dayak traditional agriculture. In addition, this condition certainly limits opportunities for the younger generation to be directly involved in practicing traditional agricultural systems in their villages. In this case, the traditional ecological knowledge (TEK) (Berkes, 2008) of Dayak parents cannot be transmitted to the next generations.

The younger generation no longer gets complete traditional knowledge from their parents. They may have learned agricultural terms but cannot practice them directly on the farm. They may also usually hear some laws or customs about agriculture, but they cannot experience the organizational and value systems that exist in swidden cultivation. Thus, the transfer of traditional knowledge to the young Dayak generation does not occur completely.

The accumulation of the three problems above can influence the Dayak agricultural tradition. The shortening of the fallow period and the shift from rotational farming to sedentary is combined with the lack of interest of the younger generation in farming. This will result in a condition that forces swidden agriculture to slowly disappear.

5. CONCLUSIONS

The Dayak Tunjung community in West Kutai Regency, East Kalimantan Province, historically maintained a deep understanding of forest cycles, reflected in their distinct

classifications for fallow stages and adherence to long-term land regeneration practices. Traditionally, land was fallowed for 10 to 20 years to sustain soil fertility and ecosystem balance. However, increasing market demands and reduced arable land have significantly altered these practices. Today, many Dayak Tunjung shorten the fallow period to just two or three years and shift towards cultivating commercial crops such as rubber, oil palm, and cocoa.

Socioeconomic transformations have also reshaped youth aspirations. Many younger members of the community prefer employment in the formal sectors over traditional farming, and the diminished pride associated with agricultural labor further accelerates cultural disconnection. This shift towards commodity-based agriculture has fostered a new perception that income generation, rather than ecological stewardship, ensures livelihood security. Consequently, the indigenous swidden practices—along with the rich ecological vocabulary that encodes them—are under threat.

The findings of this study reveal that while the Dayak Tunjung still possess a sophisticated system for classifying fallow stages, this knowledge system is vulnerable to erosion due to land commodification, changing livelihoods, and generational discontinuity. Linguistic loss is closely intertwined with the restructuring of ecological relationships, affirming the relevance of ideological discourse analysis and indexicality frameworks.

Strengthening Indigenous ecological knowledge requires more than cultural preservation; it demands reorienting conservation practices toward recognizing the interdependence of linguistic vitality, cultural identity, and environmental stewardship. Protecting the ecological knowledge embedded in Indigenous vocabularies must go hand-in-hand with dismantling the colonial conservation ideologies that continue to marginalize traditional land governance systems.

Revitalizing Indigenous ecological narratives and fostering culturally grounded conservation models are thus essential strategies for resisting biocultural erosion and promoting a more equitable and sustainable future for both human and non-human communities.

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