
FOOD AVAILABILITY AND RESILIENCE IN THE INDIGENOUS AGROFORESTRY SYSTEM OF THE ERUMANEN NE MENUVU OF COTABATO, PHILIPPINES

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INTRODUCTION

- √ Environmental change
 - ⊖ threat and challenge to humanity
 - ⊖ reflected in the loss of vital ecosystem services such as food production, water and climate regulation, and cultural and aesthetic aspects
(Millennium Ecosystem Assessment 2005)
 - √ Resilience
 - ⊖ “ability of a system to remain functionally stable in the face of stress and to recover following a disturbance” *(Redman & Kinzig 2003:5)*
 - ⊖ “on how social-ecological systems deal with change” *(Gunderson & Holling 2002)*
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√ Food Availability

- ⊖ A dimension of food security
- ⊖ “Food, like the soil, water and atmosphere that sustain it, is a renewable resource and as with all resources, it is linked to security by scarcity” (*Dupont 2000*)
- ⊖ Cultigen (cultivated) and dietary (consumed) diversity



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√ Indigenous Agroforestry

- ⊖ recognized as having the potential to ensure food availability
- ⊖ has strongly coupled social and ecological components
- ⊖ Subject to disturbances brought about by ecological and socio-economic factors



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√ **Erumanen ne Menuvu**

- ⊖ A major Menuvu (Manobo) group in Cotabato
- ⊖ Majority inhabit the uplands of Libungan, Alamada, Aleosan, Carmen and Banisilan
- ⊖ Erumanen of Palacat due to
 - √ the issue of logging along their ancestral land
 - √ their claim of seasonal variations that directly influences food availability
 - √ accessibility, security and availability of secondary data

OBJECTIVES

- √ To reconstruct the socio-environmental history
- √ To analyze food availability in terms of
 - ⊖ Dietary diversity
 - ⊖ Cultigen diversity
- √ To assess resilience in the indigenous agroforestry

METHODOLOGY

- √ Interviews (key-informant, group, informal interviews)
- √ Rapid plant diversity appraisal
 - ⊖ Guided field tour
 - ⊖ Pile sorting activities
- √ Participant-observation
- √ Review of secondary materials



RESULTS: The socio-environmental events

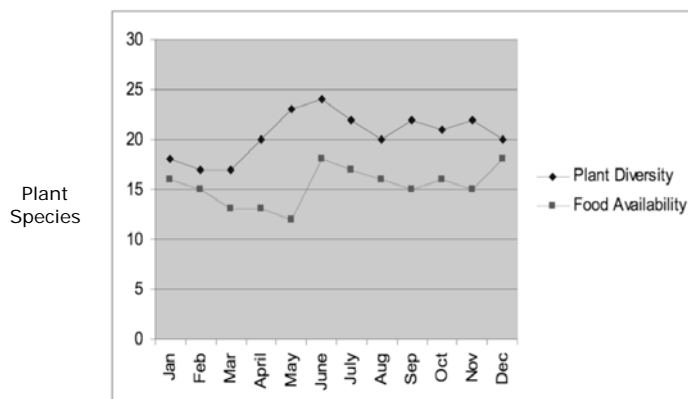
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|--|--|
| <ul style="list-style-type: none">√ Significant Events<ul style="list-style-type: none">✓ ⊖ Logging✓ ⊖ Drought⊖ Conflicts (ILAGA; Moro-Christian Conflict)⊖ Creation of Palacat as barangay⊖ Entry of other tribes⊖ Barangay development (school, road, water system, hanging bridge) | <ul style="list-style-type: none">√ Significant Changes<ul style="list-style-type: none">⊖ Deforestation⊖ Decline in biodiversity⊖ Changes in traditional farming practices⊖ Adoption of new farming technologies⊖ Linkage with institutions |
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RESULTS: Dietary Diversity

- v Dietary diversity or the simple count of food or food groups in a given area reflects food availability
- v Free list reveals annual consumption of 28 plant foods, which are distributed into 4 groups (emay, tumaved, tuved, bahas te kayu)
- v Factors affecting dietary diversity:
 - θ seasonality, and
 - θ cultural preference

Food Availability: Dietary Diversity

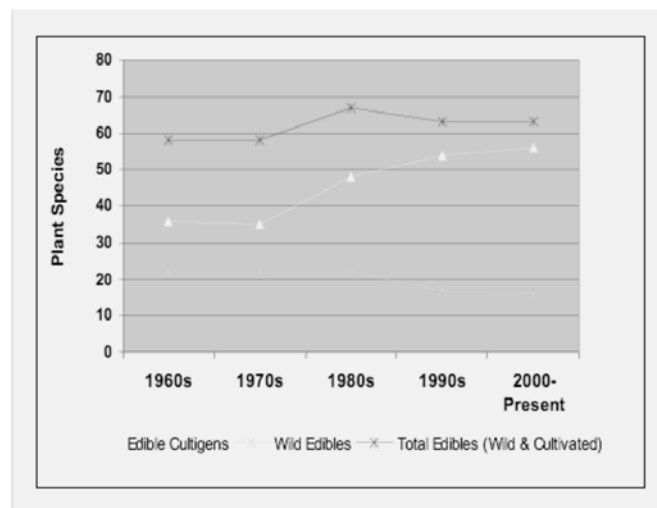


Total plant food consumed per month

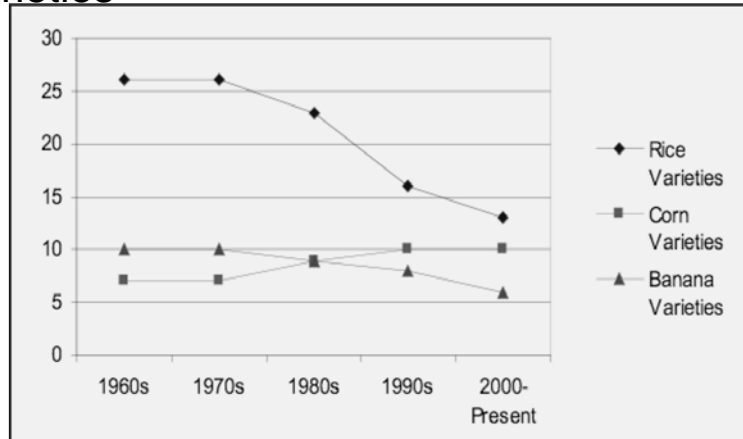
RESULTS: Cultigen Diversity

- √ Cultigen diversity or the cultivated plant species suggest food availability in an indigenous agroforestry system
- √ Increase in cultigen diversity reflects a shift in the Erumanen's reliance from wild food plants and traditional crops and/or cultivars to new crops

Food Availability: Cultigen Diversity



Trendlines of rice, banana, and corn varieties

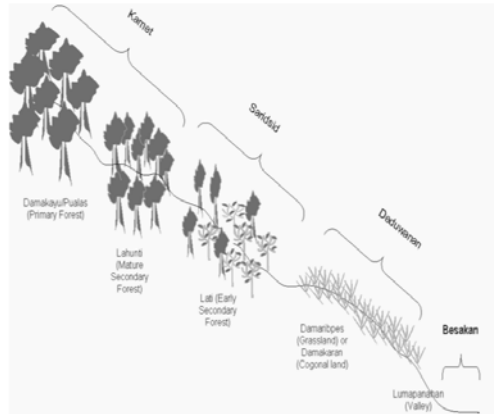


Resilience

- √ Assessment (themes based on the attributes of resilience identified by Carpenter et al. 2001)
 - ⊖ Buffers (resources necessary to maintain function and structure in times of stress and shocks)
 - ⊖ Performance (actions in response to shocks and stress)
 - ⊖ Elements of Renewal (critical elements of reorganization)

Buffers

- ✓ Cultivated wild edible plants
- ✓ Forest Resources
- ✓ Livestock
- ✓ Produce/yield from the introduced technologies



Performance: Coping Strategies to Food Shortages (short-term)

- ✓ Grain storage
- ✓ Grain drying
- ✓ Working in other's field for wage
- ✓ Obtaining wage from plowing services
- ✓ Selling animals
- ✓ Selling handicraft
- ✓ Adjusting consumption



Performance: Coping Strategies to Food Shortages (long-term)

- √ Hunting and gathering food from the forest
- √ Consumption of plant species not considered as food in *urar* or abundant times
- √ *Panavit* (to ask), a cultural means of sharing
- √ *Arat-arat*, movement of a household to other areas in search for food and food sources
- √ Barter and trade

Resilience: Elements of Renewal

- √ High regard for Kalayag, the rice deity
- √ Indigenous technical knowledge
- √ Their remaining forest resources
- √ Continued practice of multiple cropping system
- √ Adoption of new farming technologies
- √ Increasing networks and linkages



Threats to Resilience

- √ The introduced technologies, particularly *deduwanan* may account for a transition from a subsistence orientation to a cash-crop economy
- √ Linkage with other institutions may further alienate them from their culture

Conclusion

- √ In general, food availability is high as reflected in the cultigen diversity
- √ The availability of edible plants may not always result to an increase in dietary diversity
- √ Resilience is reflected in the responses of the social system.
 - ⊖ These responses come from the Eruanan's social memory, a knowledge that "encodes the perceived, remembered, and reconstructed historical experience of environmental variability and extreme events and the perceived, remembered and reconstructed ways that societies of the past reacted to these challenges"
(Redman & Kinzig 2003:10)

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