

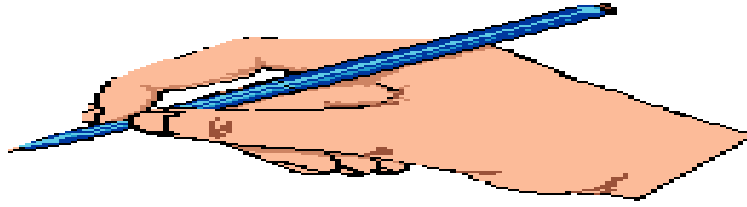
“The biggest development in the history of humanity was, I suppose, the discovery of agriculture.



I am all for industry, I am all for steel plants and this and that: But I do say agriculture is far more important than any industry.

Agriculture is the basis of our development. If we fail in agriculture, it does not matter what else we have got.....

First of all, obviously, we must have food, and enough food. Secondly, other necessities through complimentary exploitation of different components of agriculture”.....



**KERALA
ENVIRONMENT
CONGRESS
2012**



HOMEGARDENS AS A DISTINCT AGRO- ECOLOGICAL ENTITY IN KERALA.

(ALLAN THOMAS^{1.}, BHASKARAN, C^{2.}, PRAKASH, R³ and USHA, C.T.⁴)



Kerala Agricultural University

16th , 17th & 18th August 2012 at Thiruvananthapuram



Centre for Environment and Development

**agro ecological
entity**



where interaction and intimate association of different **production components**



**subsistence land-use
system for
economic needs and
environment sustainability**

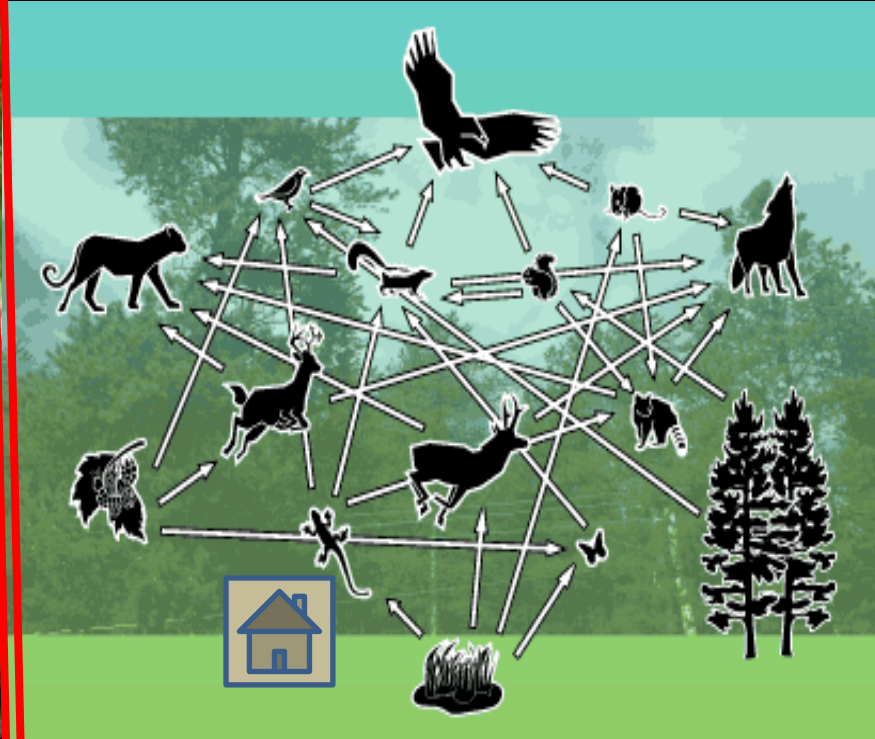
(crop-tree-animal mix combine) *insitu*

**intensively facilitated and
managed by family labour/labour**



**food production, generate additional income
through sale of farm surplus, environmental
sustainability and dynamicity of Kerala**

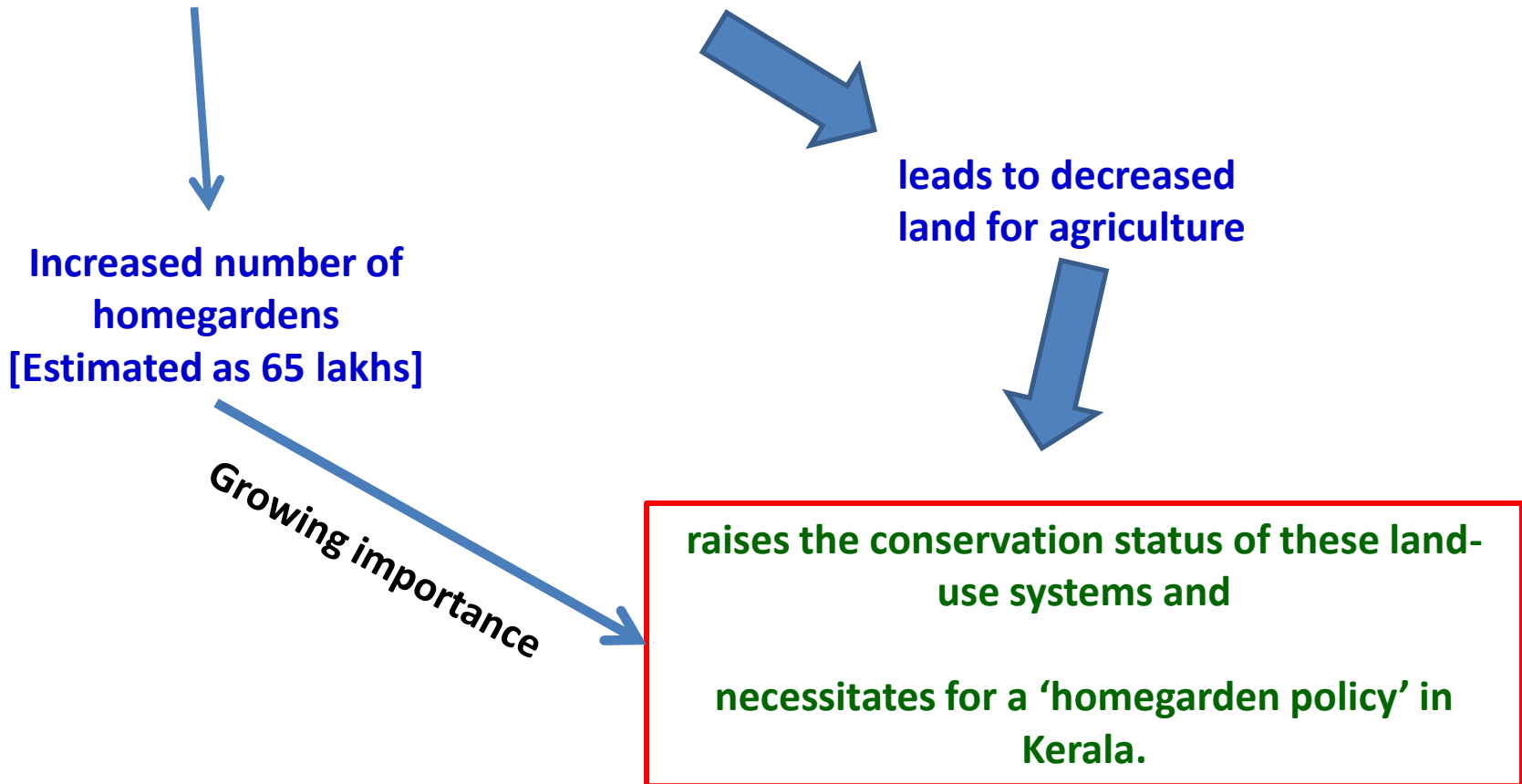
**interaction and intimate association
of
different production components**



**subsistence land-use system for
economic needs and
environment sustainability**

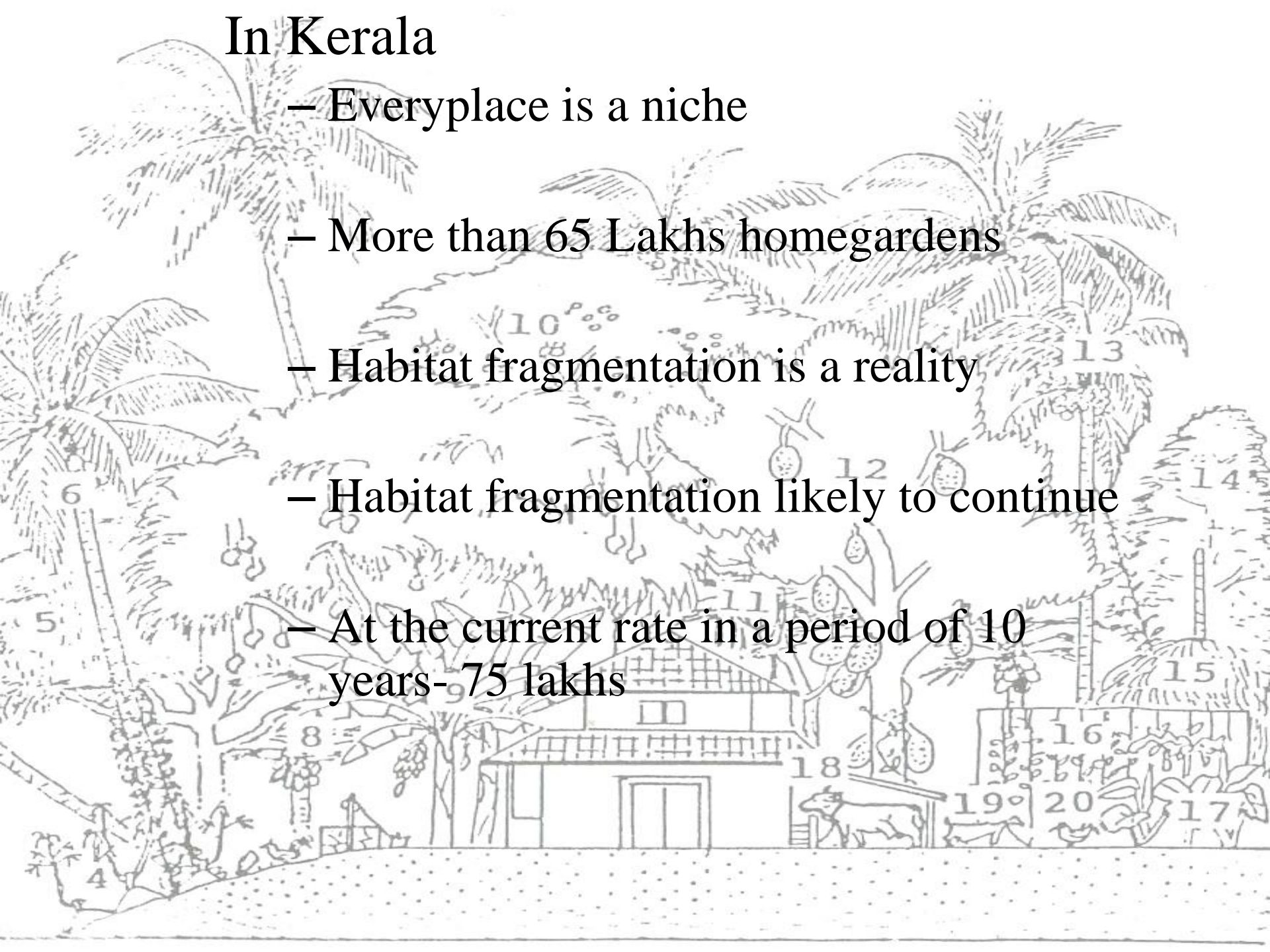
Relevance of homegardens as an agro ecological entity in Kerala

- Increase in population,
- emerging nucleotide family structure and
- high rate of fragmented holdings year round.



In Kerala

- Everyplace is a niche
- More than 65 Lakhs homegardens
- Habitat fragmentation is a reality
- Habitat fragmentation likely to continue
- At the current rate in a period of 10 years- 75 lakhs

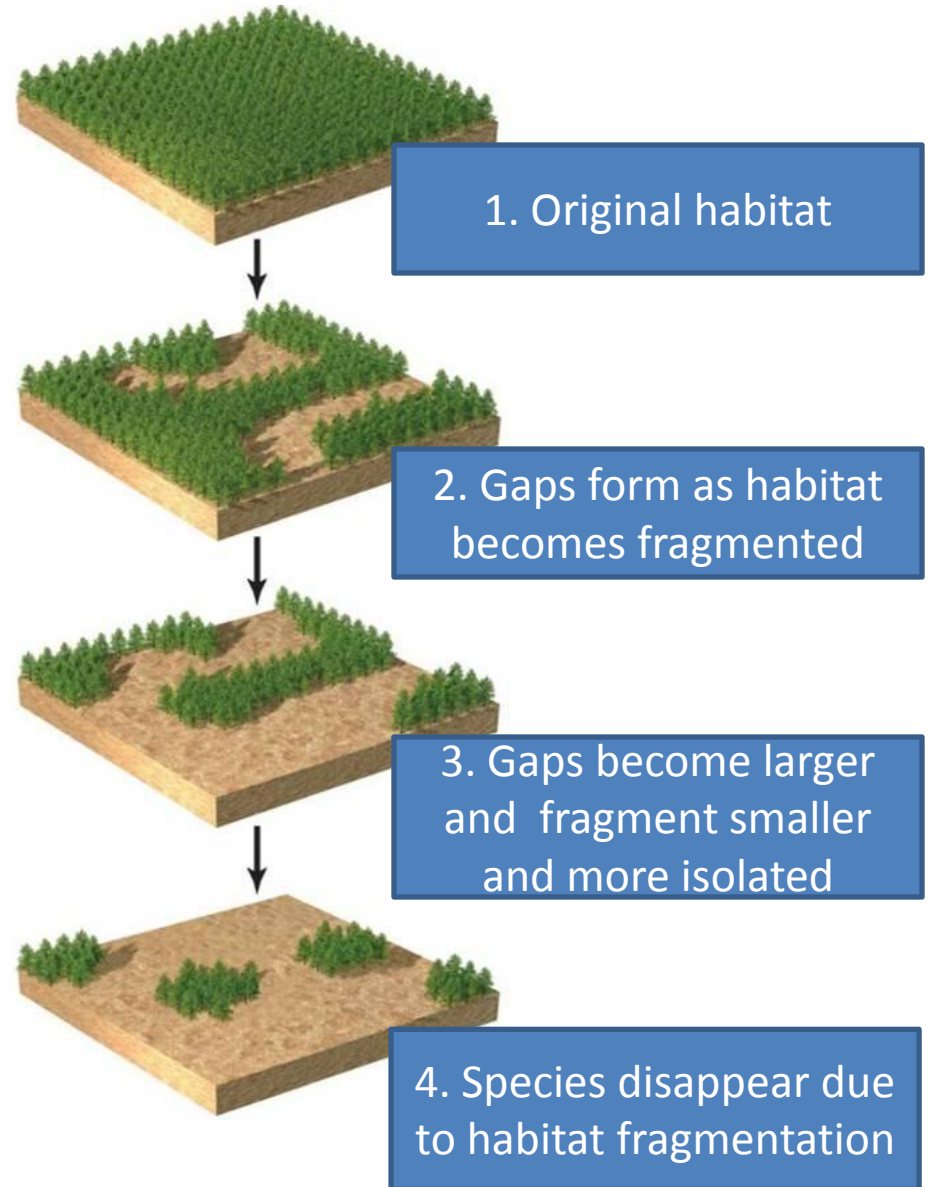


Home gardens, its biodiversity and structural dynamics.

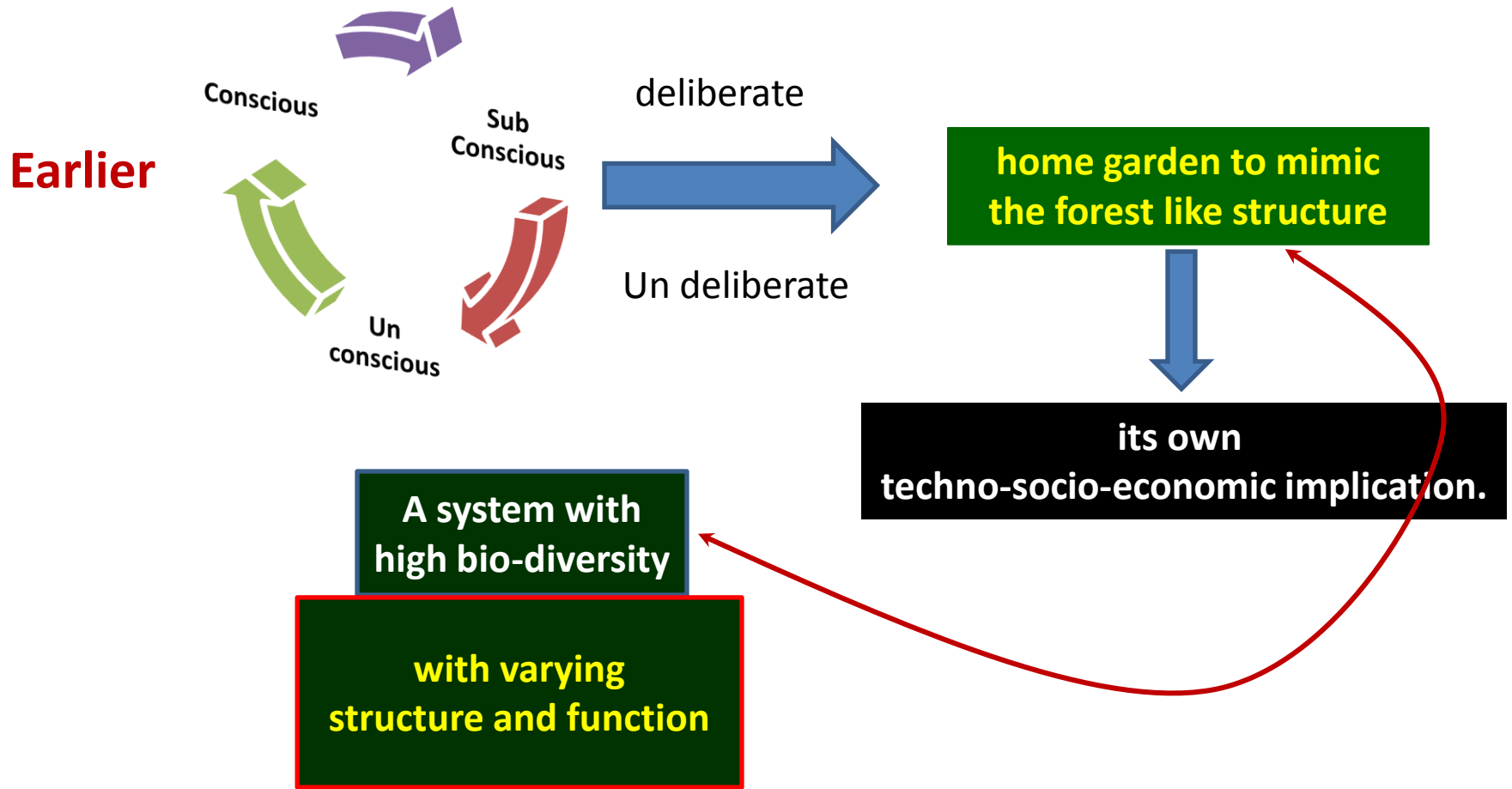
In Kerala

- Everyplace is a niche
- Habitat fragmentation
 - Smaller fragments hold fewer species

Protecting Biodiversity?



- **Smaller fragments hold fewer species**



Home gardens, its biodiversity and structural dynamics.

Biodiversity

What does “Bio” mean?

Bio = Life

Biodiversity

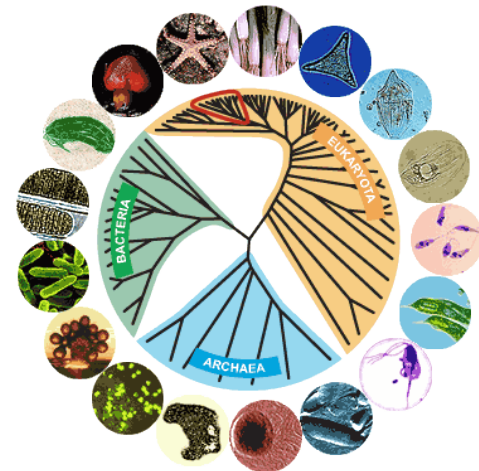
What does “Diversity” mean?

Diversity = Variety

Biodiversity is the variety of life on Earth and the essential interdependence of all living things

Scientists have identified more than 2 million species.
Tens of millions -- remain unknown

The tremendous variety of life on Earth is made possible by complex interactions among all living things including microscopic species like algae and mites.



classification

Biodiversity

function

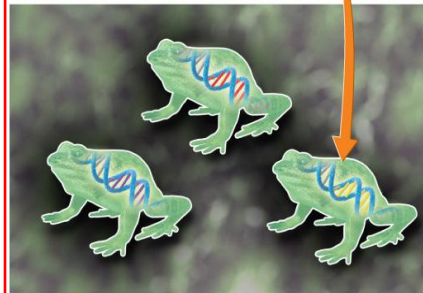
- Ecological diversity
 - different habitats, niches, species interactions
- Species diversity
 - different kinds of organisms, relationships among species
- Genetic diversity
 - different genes & combinations of genes within populations



Ecosystem diversity



Species diversity

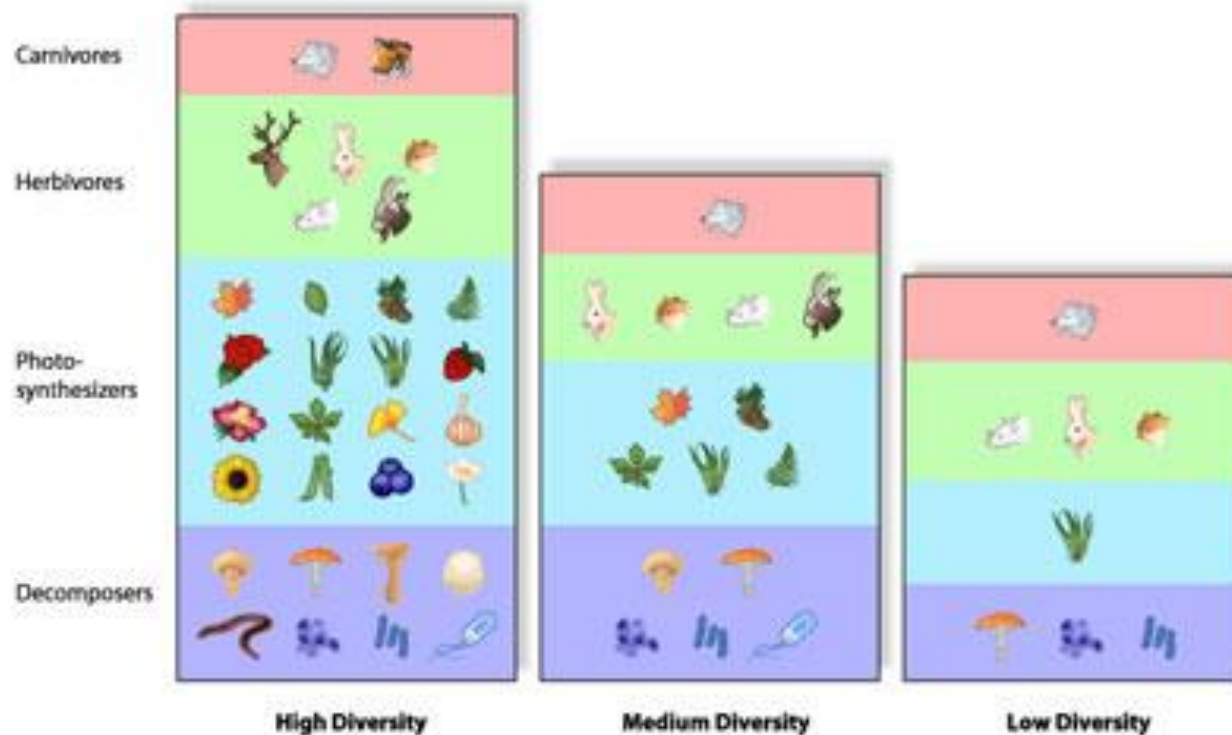


Genetic diversity

- Ecosystem functions
- Ecosystem services
 - Cleaning water,
 - Cleaning air,
 - Habitat & breeding areas for wildlife, ...
- Aesthetic and cultural benefits

Homegardens in Kerala was and is still the largest gene pool of wild and natural species.

Homegardens in Kerala is a repository of biodiversity coupled with specialized components inclusive of **sacred groves**.



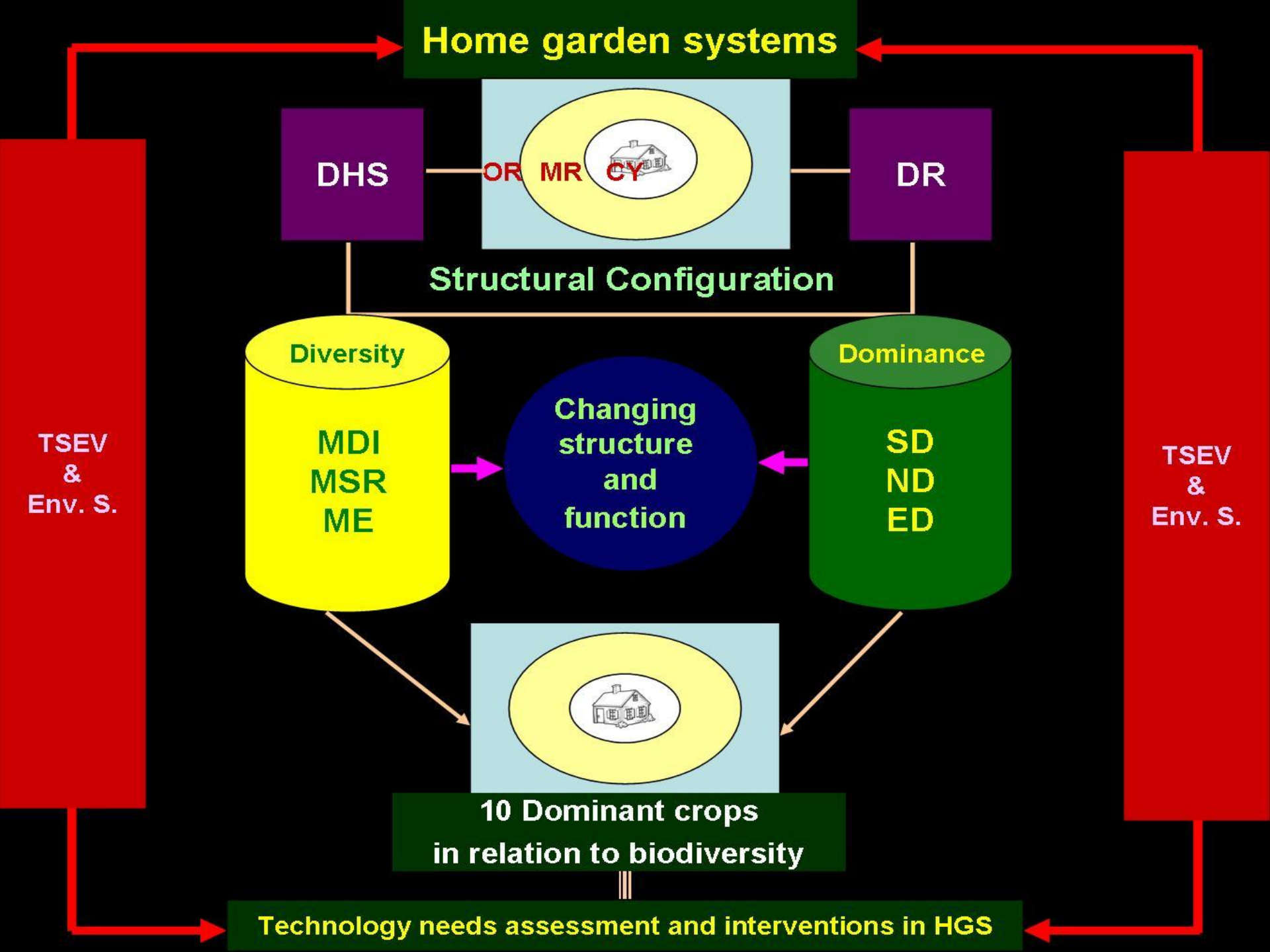


Table 1. The diversity index of South Kerala homegardens in relation to the different regions

Region(S) District (D)	Courtyard	Mid region	Outer region
Thiruvananthapuram	1.040	2.150	1.642
Kollam	1.784	1.995	1.324
Alappuzha	0.608	1.905	1.714
Pathanamthitta	1.148	1.865	1.334
Mean	1.145	1.979	1.563
F	F_{DS} 11.778**; F_S -69.446**		
CD	DS 0.278; S 0.139		
SE	0.1; 0.050		

** - Significant at 1 per cent level

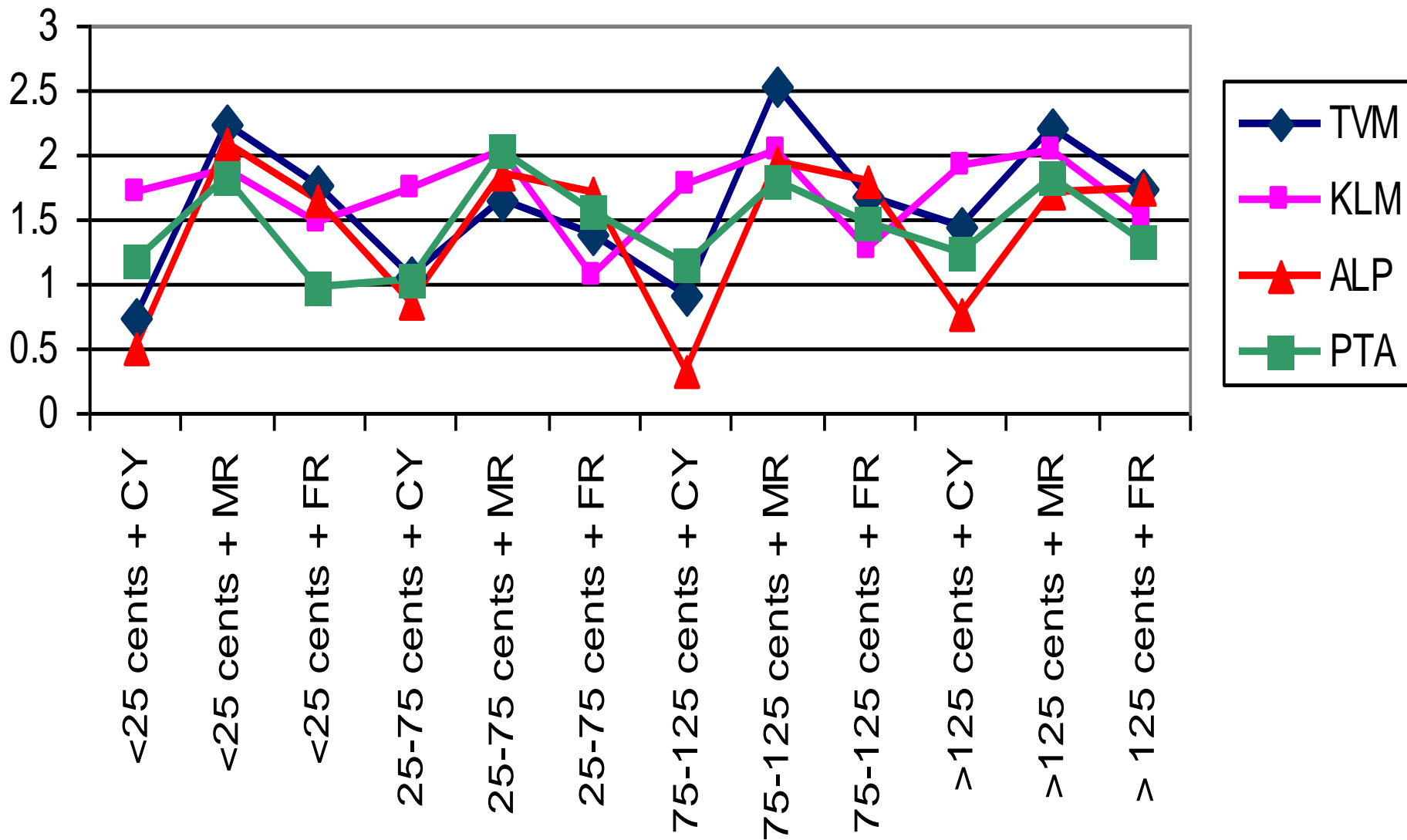
[Shannon wieners diversity index.]

Table 2. The diversity index in different regions of homegardens of different holding size in all the four districts

Districts Holding size + region	Thiruvananthapuram	Kollam	Alappuzha	Pathanamthitta
<25 cents + CY	0.750	1.712	0.497	1.189
<25 cents + MR	2.222	1.882	2.102	1.809
<25 cents + OR	1.768	1.460	1.634	0.975
25-75 cents + CY	1.046	1.735	0.852	1.032
25-75 cents + MR	1.650	2.030	1.866	2.032
25-75 cents + OR	1.396	1.068	1.702	1.562
75-125 cents + CY	0.917	1.765	0.318	1.139
75-125 cents + MR	2.528	2.033	1.946	1.792
75-125 cents + OR	1.681	1.274	1.788	1.467
>125 cents + CY	1.449	1.925	0.765	1.231
>125 cents + MR	2.200	2.033	1.707	1.828
> 125 cents + OR	1.722	1.492	1.734	1.332
F (18.576)	0.972 ^{NS}			
CD	0.556			
SE	0.201			

NS - Non significant (Cy- Court Yard; MR- Mid region; OR- Outer region)

Diversity index in different regions of different holding size in all districts



Variability in homegardens exists within regions, within and between districts, but was not influenced by holding size.

Thus, the effect of zonation of homegardens and variance of structure in terms of differential biodiversity between regions in a homegarden implies that...

...the match between the variation in priorities of the home and the spatial arrangement of the homegarden was strong both socio-economically and bio-physically.

This enables us to:

Identify commodity crops and non commodity crops contributing to biodiversity and economics of homegardens.

Equally it also exposes crops of less importance or of no consequence to the home.

It will thus enable better planning of homegardens for additional income generation and improving biodiversity of existing farming situation



furthering



CC biodiversity



Homegardens: Environmental Significance

Individual households must pursue their own agenda for food security, additional income and ecosystem integrity



Homegardens in Kerala was and is still the **largest gene pool of wild and natural species**- a repository of biodiversity coupled with **specialized components** inclusive of **sacred groves**.

The unscrupulous intervention by man for both non agricultural and commercial agriculture has led to the erosion of this great 'gene pool'

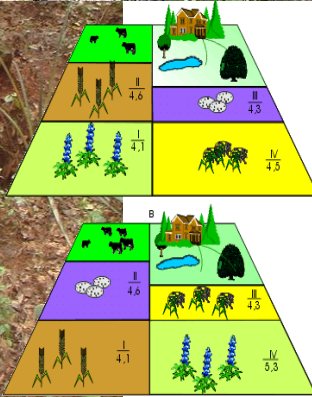
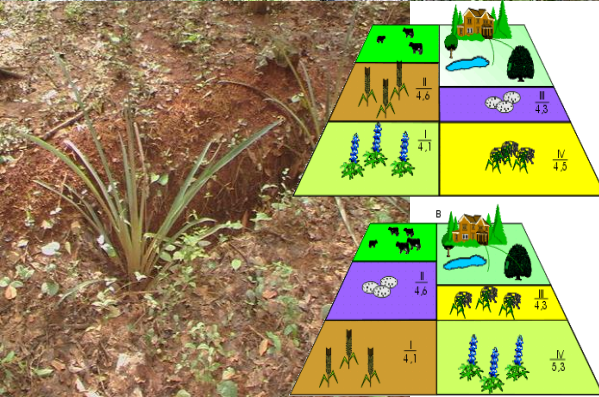
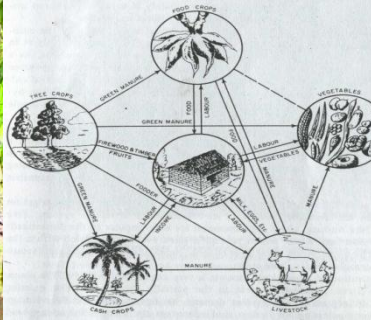


it is essential to **preserve the wild species and landraces** which are practically possible by **promoting homegardens** as an essential agro ecological entity.



The importance of **'Safe Food'** is gaining global attention in this era of modernization. The resurging trends of organic farming have increased the scope of homegardens because it is easy and practical to **convert an entire village to an 'organic farm'** by concentrating on **individual households at a larger level.**





Sustainability under temporal dimension and resource recycling capacity, availability of raw materials, supplies and services under environmental dimensions are important bcoz homegardens, is apparently a climax ecosystem, where ecological succession is consciously manipulated by human beings.

Agro-ecological components and entities promote 'clean nature' through proper maneuvering.



'Place of origin needs to be the place of sink'.



65 Lakhs homegardens that constitutes 60-70 per cent land area needs to be agro ecologically promoted as this is a system that promotes environment sustainability through effective recycling of waste.



The **5** policy prescriptions are a sine-quo-non to realize the full potential of Kerala in this regard.

- **Private participation in the form of farmer participatory home garden producer cooperatives shall be supported by Public Policy stipulations.**
- **In order to overcome the limitations of scale in Homegarden and non-Homegarden systems, vertical farming including terrace farming, precision farming and protected cultivation shall be fostered maintaining /augmenting its biodiversity.**

- The ultimate mission shall be the sequential emergence of integrated agro industrial plants in production catchments centering around home garden farming systems aided by infrastructural and financial incentives by the State
- The State shall reinforce the Research Extension complimentarity in agriculture sector with special emphasis on home garden farming system as a means to techno socio economic and environmental security.
- An act similar in line to that of USA viz., *Homestead Act* may be introduced for preventing further fragmentation of agriculture holdings, to prevent suspension of agricultural activity owing to mushrooming of real estate business and encompassing it for sale.



...The secret of walking over water is in knowing... where the stones are.

Research & Extension should guide farmers by showing farmers the hidden stones under water



**LET US WALK THE TALK AND MAKE THEM
WALK TOWARDS SUCCESS**

