

Public Engagement tools in invasive species management

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Achatina fulica- The Giant African Snail

- One among the world's 100 worst invasives
- Native to Kenya and Tanzania
- An endemic population was present in Kerala 30 years ago
- Wide spread infestation in the last 3 years
- Feeds on nearly 500 plant species
- Of extreme nuisance value



How to involve the public in managing IAS

- Consultation on key issues that directly affects the public
- Inclusion of public values and ideas into the process
- Public participation is an effective method for building public support

Public participation

Is a continuous process of the interaction between the organisation responsible for decision making and the public

Public participation include :

- Measures promoting the full understanding by the public of the procedure of decision making used by an authority
- Awareness of the public about the status and implementation stage of an activity
- Collection of the concerned citizens opinions , their attitude towards the project objectives and tasks

Types of public participation

- Passive participation
- Participation by giving information
- Joint decision making
- Participation in implementation
- Leading implementation

Tools for awareness building

- Notifications in the local paper
- Public notices/ Posters
- Press release to aware the public to the problem
- Information notices for tourists

Giant African Snail

Origin : Kenya and Tanzania of east Africa.
Invaded most of southern hemisphere countries.

First occurrence outside Africa was in Bengal, India in 1847.

Pathway of spread: trade, transport, tourism and smuggling.



Achatina fulica



Achatina fulica with eggs

Is a macrophytophagous herbivore; feed on vast variety of food crops.

Is a hermaphrodite. Lay 1200 eggs. Hibernate for 3 years. Moist condition is ideal for them.

Carry pathogens. Is a vector of rat lung worm

All except four districts in Kerala infested

High impact on homestead agriculture, cardamom plantations

Prevents the germination of plants

High nuisance in urban dwellings



Look out notice

The local self governments in all infested locations were alerted and the control method was communicated

All panchayaths which were prone to infestation was provided with look out notices

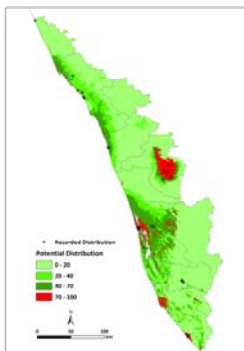


- Coordinates recorded with GPS
- Imported to GIS
- Bioclimatic variables downloaded from Worldclim dataset (version 1.4)
- Elevation taken from the SRTM 30 plus data
- All raster coverages resamples to a resolution of 30 arc pixels
- Principal component analysis reduced the number of variables to 14
- Maximum entropy modelling (Maxent ver. 3.3.3a) was used to predict the potential distribution
- The model was run for 500 iterations

VARIABLE CONTRIBUTION

Variable	Percent contribution
Precipitation of Coldest Quarter	23.6
Mean Diurnal Range (Mean of monthly (max temp - min temp))	22.1
Max Temperature of Warmest Month	16.3
Temperature Annual Range (P5-P6)	13.1
Mean Temperature of Wettest Quarter	8.8
Precipitation of Driest Month	8.1
Temperature Seasonality (standard deviation *100)	4.8
Mean Temperature of Warmest Quarter	1.3
Mean Temperature of Driest Quarter	0.9
Precipitation of Wettest Quarter	0.8
Precipitation of Wettest Month	0.1
Isothermality (P2/P7) (* 100)	0
Annual Precipitation	0

Prediction model



infestations reported to KFRI from States other than Kerala



Collaborations

National Beureau of Agriculturally Important Insects (NBAII), Bangalore

Dr. M Nagesh has procured samples from KFRI and have started screening nematodes against the Giant African Snail

University of Agricultural Sciences, Dharwad

Dr. RR Patil has requested for collaboration to evolve IPM strategies

Madhya Pradesh Forest Department

Pankaj Srivastava,, CCF, Forestry Extension & Research have requested help to contain snail infestation in forest nurseries at Indore and Bhopal

Academics


Two new PhD registrations

1. Response native fauna to the giant african snail invasion
2. Tracing the spread of giant african snail using molecular markers

One MSc Dissertation completed

Impact of giant african snail in Kannur District, Kerala

APFISH Workshop on
Forest Health Technology and Phytosanitary Standards
6, 8, 10 & 11 November 2011, Beijing, China




How to control?

- Metaldehyde?
- Iron phosphate?
- Something new?

What news from Florida?

Kerala Forest Research Institute, Perinthi, Kerala, INDIA www.kfri.org





Tobacco decoction- copper sulphate mixture



- Eradication process started off in four districts
- New satellite populations which occurred in 2011 eradicated
- Snails in most locations are getting into hibernation
- Gearing up for complete eradication work starting in February 2012

Control methods

The control method adopted initially was to bait the snail using cabbage leaves and to spray Tobacco decoction – Copper sulphate mixture (TDCS mixture)

Owing to the difficulty posed by people to make the TDCS mixture, tobacco decoction was replaced with Actara- a nicotine based pesticide

Currently experiments are under way to prepare Cupric ricinoleate which has been reported to have molluscicide effect.

*Memoria do Instituto Oswaldo Cruz
S. (1980), 1955*

Molluscicide action of the cupric ricinoleate

by

N. Botafogo Gonçalves and Rodon de Rodan Loureiro Soares

It is estimated that there are 150 million people in the world suffering from schistosomiasis and the increase of our demand for

Thank you