



**Extended Abstract**

**International Symposium of Sabaragamuwa University of Sri Lanka**

**(ICSUSL) - 2017**

**Threats to Native Plant Species Due to Widespread of Invasive Plants: study in Sinharaja  
Rainforest, Pitadeniya region**

**De Maduwanthi H.A.I.L<sup>1</sup>, Maduwanthi K.H.D<sup>2</sup>, L.G.D.S.Yapa<sup>3</sup>**

**Department of Geography**

**University of Ruhuna**

**Ireshalakshi93@gmail.com**

1. Abstract

The world heritage Sinharaja rain forest is located in southwestern wet zone of Sri Lanka. It belongs to Galle and Matara districts. This forest is spread over an area of 11187 hectares. This forest is highly rich with biodiversity of animals and plants. The forest has a green coverage of 75 – 92 % and it consists with 2 species of native plant and creepers. (Forests preservation department, 2007). Being a threat to said in the invasive plants are growing this area in the Sinharaja forest in step by step. Invasive plants are defined as plants which could affect the growth and existence of natural forests in the environmental system or their varieties or scientific remedial value that plants possess with. Some of these plants were grown for so needs and some were grown naturally as a random incident. It's being noticed that these invasive plants are at higher place in Sinharaja forest. Pitadeniya Sinharaja forest area was selected for this study. The main objective of this study is to identify threats that arise to the environment system due to the growth of invasive plants in the area while minor objectives are to identify the different species of invasive plants and the factors that result from the growth of invasive plants. In collecting data for the study, an area of 46km<sup>2</sup> was examined using direct observation. Additionally through informal discussions and snap shots the data was collected at the research center. Secondary data collection was based on study related books, brochures, internet, notice boards, display preservation centre, and information from forest preservation department. For the data analyzing, charts were prepared using MS excel and were used for the quantitative data evaluation and for the qualitative interviews and information collected through direct observation was presented and analyzed through maps, and snap shots. According to the research done at the pitadeniya area which is located to the south of the sinharaja rain forest, it was realized that the thick forest, river basin forest and gardens considered in this study, were severely affected with the growth of invasive plants. In the 48 km<sup>2</sup> which was considered as the study area more than 10% was covered with invasive plants. katakaluboovitiya, podisignomaran, kaha

mainly visible invasive plants in that area. These plants mainly spread over the ground surface and it as 85.7% out of the total area selected for the research. The plant name as Gandapana which is consist of the dominant plant of invasive plants, were still not spread in the researched area but about 500m

ahead from gardens towards the forest this Gandapana seems prominent and it could be realized the r plant could attempt to invade into the thick forest immediately.

**Key words:** Invasive species, Native plants, Threats, Sinharaja forest

## 2. Introduction and research problem/issue

The Sinharaja rain forest, one of world famous heritage is located in southwest wet zone in sri lanka. A spread through and belongs to Galle, Matara and Rathnapura districts. The total area of the forest is 1118 It receives an annual rainfall between 3000 – 6000mm due to northeast and southwest monsoon rain temperature in the forest amounts between 18 -27 °C. This forest is highly rich with number of biodi animals and plants. The Forest has a green coverage of 75 – 92% and it consists with 217 different speci plant and creepers (according to forest preservation department of Sri Lanka 2007). Being a threat to plants the invasive plants are growing all over Sinharaja forest in a very high pace. What are threats aris plants grown in the world known heritage Sinharaja Pitadeniya rain forest located in lowland of Sri La growth of invasive plants? The main objective of this study is to identify threats arises to the environme due to the growth of invasive plants in Pitadeniya area. And as the secondary objectives would be to clea the different species of invasive plants and to identify the factors which results to grow invasive plants

Invasive Plants are defined as species of plants which could affect the growth of existence of natural fo environmental system or the biological varieties or scientific remedial value that plants possess with. So plants were grown as, for some specific needs and some were grown naturally as a random incident noticed that these invasive plants are grown at higher pace in Sinharaja forest. Some social as well as reasons have been found as some the factors for growth of invasive plants. As the studies undertaken f growth of invasive plants in the world heritage forest Sinharaja is insignificant, this study would benefit the factors and how these factors enables the invasive plants to grow intensively.

## 3. Research Methodology

An area related to Piyadeniya, which is one of the main entrance point in to Sinharaja rain forest locat south gradient was selected as the source of collecting data for this research. From Matara to Mediripitiya to Dombagoda route could be mentioned as the easiest way to enter into the study p collecting date in the area of thick forest, river basin forest and garden surrounding the Pitadeniya P centre which is located 2.6 km ahead from the entrance counter, was examined 4km from the preserva and pathways was examined with direct observation for 4 m each. While the observation, the data wa through informal discussions and Snap shots. Besides this primarily sources of

data, study related books, brochures, notice boards displayed in preservation centre, information from g institutions such as from forest preservation department, information found from the internet were als the secondary sources for this study. In order to emphasize on the growth of invasive plants, the q method

The locations where such invasive plants grow could be identified as in three main locations based on of growth of these plants in the Pitadeniya area. These plants mainly grow in river basins, in thic well as in home gardens. The rain forest vegetation is identified under five numbers of layers.

- 1 Emergent Tree >40m
- 2 Canopy layer ~~40m~~
- 3 Su Canopy layer 150m
- 4 Understory layer 15m
- 5 Ground layer 5 < (Forests preservation department, 2007)

The invasive plants are more likely to grow in Understory layer & Ground layer out of these above me

---

was used and based on that, the data was analyzed using the MS Excel software application to d and charts. Under the qualitative method, interviews and information collected through direct observ presented and analyzed through charts, site maps, and snap shots.

Table 1: The Distribution of invasive plants in Pitadeniya Area.

Invasive plants	Strata	Habitat		
		Riverine forest	Dense forest	Home garden
<i>Clidemia hirta</i>	Ground layer	3	3	-
<i>Lantana camara</i>	Ground layer	-	-	3
<i>Eupatorium odoratum</i>	Ground layer & Understory layer	3	-	-
<i>Schumacheria castaneifolia</i>	Sub Canopy layer	-	-	3
<i>Sphagneticola trilobata</i>	Ground layer	3	-	-
<i>Cuscuta campestris</i>	Ground layer	3	-	-
<i>Panicum maximum</i>	Ground layer	-	-	3

(Field Survey, 2016)

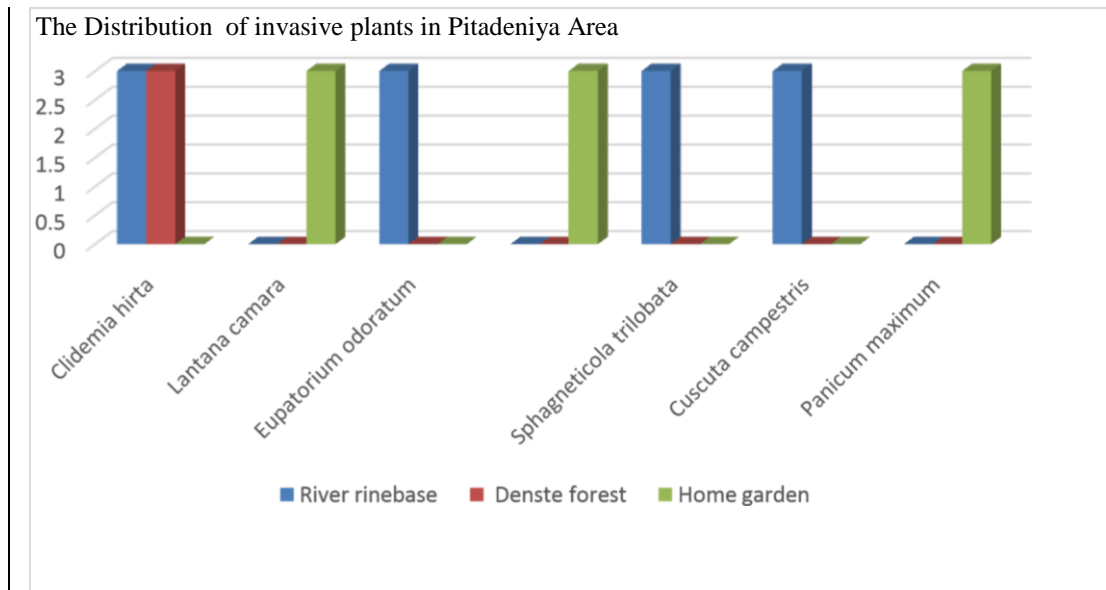


Figure 01. The eco systems which distribute of invasive plants in pitadeniya Area (2016 -field survey)

Table 02: Names of invasive plants grow in Pitadeniya area

Scincetific name	Common name
Clidemia hirta	Katakalu boovitiya
Lantana camara	Gandapana
Eupatorium odoratum	Podisingnomaran
Schumacheria castaneifolia	Kakiriwara
Sphagneticola trilobata	Kahakarambu
Cuscuta campestris	Aga mula nethivel
Panicum maximum	Gini thruna

(2016 Field survey)

Though most of these invasive plants forests even it is unlikely grow.

The following are indentified as possible factors for the outbreak of invasive plants.

- Ability to sustain even in bad ecological circumstances. -  
growth

- Lowest amount of resources required for existence.
- Human influence

The extent to which the invasive plants have harmed the Sinharaja Forest

These plants enter into the environmental system and struggle with other plants for space and to obtain no of light. Example: the spread of Katakalu Boowitiya. As a result, native plants would be exhausted. affect the growth of native ground Orchid and native herbs which grow in ground level. This would cause to imbalance the environmental system.

The plants, Katakalu boowitiya could be seen growing in river basins as well as in thick forests, and it the growth of plants like native herbs which grows in ground strata. This has caused to disappear n dramatically and to improve existence of invasive plants as a main environmental system. As an exa herbs could be

According to the research done at the Pitadeniya area which is located to the southern gradient of th rain forest, it was realized that the thick forest, river basin forest and home gardens considered for the s severely affected with the growth of invasive plants. In the 48 km <sup>2</sup> which was considered as main sou more than 10% was covered with invasive plants. Kataluboovitiya, Podisignomaran, Kahakarabu, visible invasive plants in that area. These plants mainly spread over the ground surface and it is evaluate out of the total area selected for the research. In shrub surface the growth of these plants are about 1 river basins invasive plants such as Kataluboovitiya ,Kahakaraboo, Kakiriwara, mainly could be seen name as Gandapana which is considered as one of the dominant plant of invasive plants, were still no the researched area but about 500m ahead from gardens towards the forest this Gandapana seems prom it could be realized the risk that this plant could attempt to invade into the thick forest immediately.

6. References (Selected)



commonly seen in Pitadeniya home gardens. This would as well as affect the biological diversity. H  
invasive plants would spread with a high pace affecting the growth of native plants and other plants.  
and herbs which in threat disappearing would get destroyed.

5. Conclusions, implications and significance

Southwest rain forests preservation project, Forests preservation department, Environment and natural resources ministry (2007), The world heritage Sinharaja

Gunasekara, Lalith. (2012) Introducing of Invasive Plants of Sri Lanka. Samayawardana Printers (Private) Limited, Maligakanda Road, Maradana, Colombo -10.

[www.harithamaruwo.wordpress.com](http://www.harithamaruwo.wordpress.com) [last accessed date on 2015/01/15]

[www.biodiversityofsrilanka.blogspot.com](http://www.biodiversityofsrilanka.blogspot.com) [last accessed date on 2015/01/17]

Students: De Maduwanthi H.A.I.L<sup>1</sup>, Maduwanthi K.H.D<sup>2</sup>

Probationary Lecturer : , L.G.D.S.Yapa<sup>3</sup>

\*Corresponding Author, Tel:0712625225,

E-mail Address: ireshalakshi93@gmail.com