# IPM Innovation Lab Workplan

## Project title

**Biodiversity and climate change**

## PI

Madhav Marathe

## CO PIs

## Collaborating Institutions

University of Virginia, Biocomplexity Institute and Initiative, Charlottesville, VA, USA

Tribhuvan University, Nepal

## Objective 1

## Title

Development of deep learning framework for species distribution from remote sensed data

#### Activity 1

* **Title** Procuring high-resolution images
* **PIs** Abhijin Adiga, Pramod Jha, Krishna Poudel
* **Site/Location** BII
* **Status**
  + Continuing
* **Description**

Areas of interests and periods of interest have been identified. With help from IPMIL, vendors of Digital Globe data have been contacted and quotes have been obtained for images.

* **Expected outcomes**
  + Images will be procured

#### Activity 2

* **Title** Modeling framework development
* **PIs** Abhijin Adiga, Aniruddha Adiga, Madhav Marathe
* **Site/Location** NSSAC, BII, UVA
* **Status**
  + Continuing
* **Description**
* **Expected outcomes**
  + Code will be documented.

## Objective 2

### Title

## Understanding spatiotemporal dynamics of invasive species spread

#### Activity 1

* **Title** Creation and analysis of species distribution maps
* **PIs** Abhijin Adiga, Aniruddha Adiga, Madhav Marathe, Srinivasan Venkatramanan
* **Site/Location** NSSAC, Biocomplexity Institute and Initiative, UVA
* **Status**
  + continuing
* **Description**
* **Expected outcomes**
  + Analysis will be documented.
  + Manuscript will be submitted to a suitable venue.

#### Activity 2

* **Title:** Analysis of distribution maps corresponding to different periods
* **PIs:** Abhijin Adiga, Aniruddha Adiga, Madhav Marathe, Srinivasan Venkatramanan
* **Site/Location:** NSSAC, BII, UVA
* **Status**
  + new
* **Description**
* **Expected outcomes**

The analysis will be documented and submitted to an appropriate venue for possible publication.

## Graduate and undergraduate students sponsored by the project

* Ethan Choo, USA, Under graduate student, Department of Computer Science, UVA, 06/01/19 to present, 100% funding, advisor(s) Abhijin Adiga, Assessing threat of *T. absoluta* in South-east Asia.

## Short term training planned

Workshop in India.

## Publications planned

### Article

* Mapping Invasive Plants in a Biodiversity Hotspot Using Remote Sensing Data. Aniruddha Adiga, Ethan Choo, Madhav Marathe, Srinivasan Venkatraman, Pramod Jha, Krishna Poudel, Sandeep Dhakal, Bharat Babu Shreshta, Rangaswamy Muniappan, and Abhijin Adiga.
* Spatiotemporal dynamics of invasive plants using multi-year remote sensing data. Authors TBD.

### Book chapter

None

### Poster

1

### Conference Abstracts

1

### Technical bulletin

None

### Extension bulletin

None

### Other

None