

- <https://doi.org/10.1002/9783527678518.ehg2014021>

Distribution (Image Explanation)

- Map shows widespread presence of *P. juliflora* across India:
 - High density in Rajasthan, Gujarat, Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu
 - Also present in Punjab, Haryana, Delhi, MP, UP, Orissa
- Particularly dominant in arid/semi-arid zones (150–750 mm annual rainfall), plains, valleys, and saline soils up to 1,200 m ASL

Quantitative Highlights

- Introduced since 1870–1913: now covers ~23 million hectares of salt-affected & wasteland areas
- Growth potential: approx. 3 m^3 biomass per hectare annually from plantation models
- Thar Desert (Jodhpur/Pali/Sirohi):
 - Canopy classes—small, medium, large—show strong effect: larger canopies = higher soil moisture, N, P, K, SOC

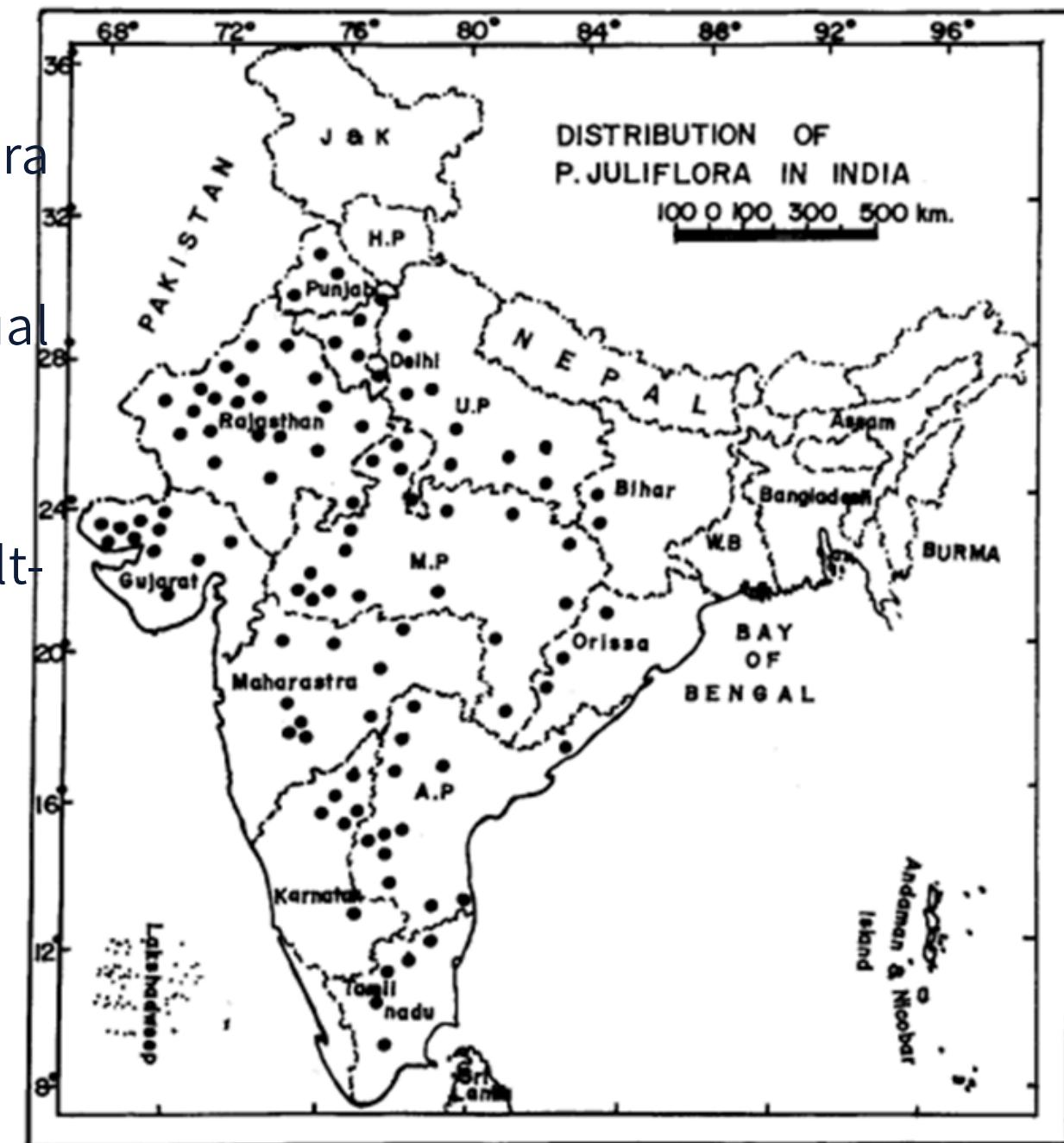


Figure 2. Distribution of *P. juliflora* in India.

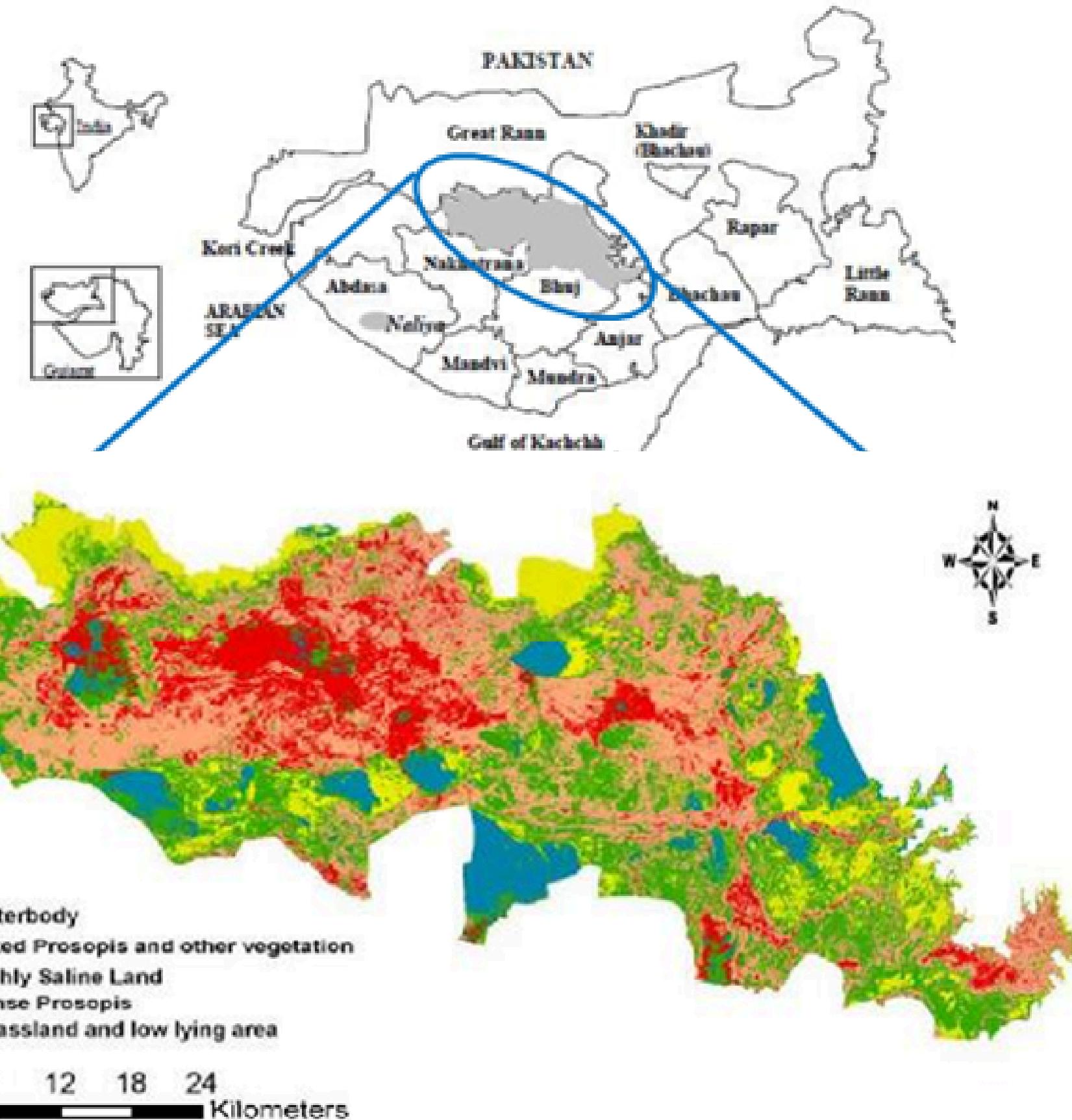
- <https://doi.org/10.3390/su12155887>

Map Overview

- Dense Prosopis (red): ~341 km² → 13% of the study region
- Mixed Prosopis & vegetation (beige): transitional stands
- Highly saline lands (yellow): ~341 km² → 13%
- Water bodies (blue): ~190 km² → 7%
- Grasslands & low plains (green): remaining area

Class	Area (km ²)	% of total
Dense Prosopis	341	13%
Mixed Prosopis & vegetation	—	(beige zones)
Highly saline land	341	13%
Water bodies	190.6	7%
Grassland & low-lying	—	Rest (~67%)

(Total area ≈ 2,600 km² of landscape assessed)



Key Insights & Implications

- Dense Prosopis zones (~34,100 ha) indicate mature, high-biomass patches ideal for commercial harvesting (fuel, charcoal, biochar, fodder pods).
- Mixed zones offer sustainable options through coppicing and rotational collection.
- Saline lands coincide with Prosopis spread—these marginal lands are less contested and present harvesting opportunities.
- Water bodies and grasslands, largely free of Prosopis, help delineate target harvesting boundaries.

Figure 3: Land Cover Image of 2011

- <https://doi.org/10.3390/land9020059>

Table 1. General land-use and demographic profile of the study area (Block name: Chinhat, Tehsil name: Lucknow, District: Lucknow).

S. No.	Land-Use of the Block *	(Area in ha)
1.	Total block area	12,564.94
2.	Cultivable area	5688.15
3.	Forest area	3.70
4.	Area under non-agricultural uses	1746.70
5.	Barren and un-cultivable land	462.40
6.	Permanent pastures and other grazing lands	74.20
7.	Land under miscellaneous tree crops, etc.	139.10
8.	Culturable wasteland	597.30
9.	Fallow lands other than current fallows	2398.9
10.	Current fallows	1455.40
Demography of the Block *		(numbers)
11.	Number of households	24,845
12.	Total population	137,251
Demography of study area (<i>P. juliflora</i>-invaded and non-invaded) #		(numbers)
13.	Households in <i>P. juliflora</i> -invaded area	21
14.	Households in non-invaded area	36
15.	Population in <i>P. juliflora</i> -invaded area	129
16.	Population in non-invaded area	218
17.	Livestock in <i>P. juliflora</i> -invaded area	11
18.	Livestock in non-invaded area	30

* District census handbook (www.censusindia.gov.in); # from the field survey and interviews

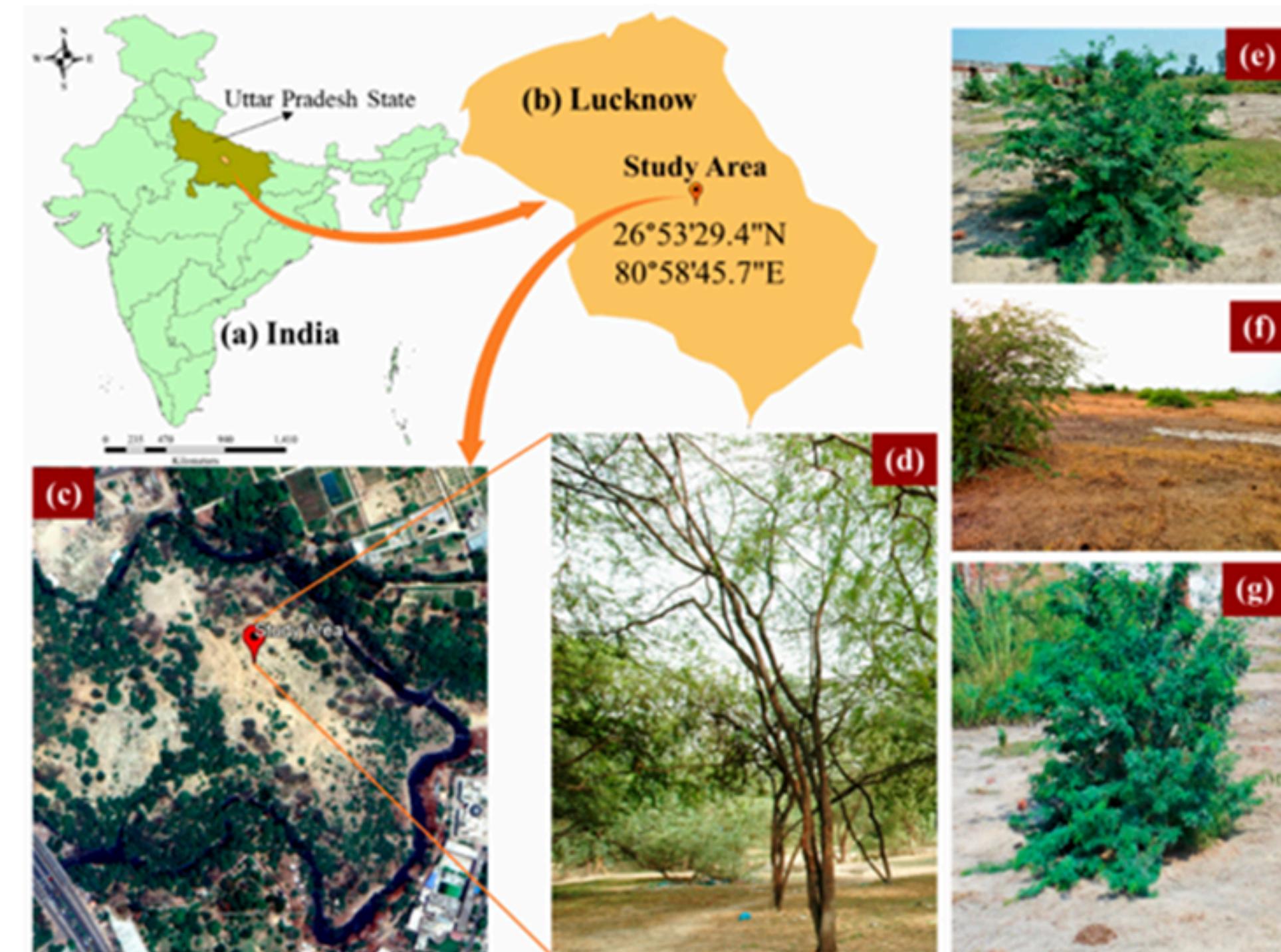


Table 1: Extent of *P. juliflora* invasion in various taluks of Pudukkottai District

Taluk names	Area of Taluk (ha)	No of patches	Extent (ha)
Viralimalai	49822.5	356	1083.49 (2.1%)
Avudayarkovil	42039.2	233	697.59 (1.6%)
Kulathur	47923.7	145	462.03 (0.96%)
Tirumayam	56667.9	106	376.76 (0.66%)
Gandarvakottai	31700.6	97	310.46 (0.97%)
Pudukkottai	33807.3	167	303.91 (0.89%)
Ponnamaravati	32822.2	142	292.11(0.88%)
Aranthangi	44176.05	80	264.99 (0.59%)
Alangudi	38916.5	66	218.28 (0.56%)
Illupur	35383.5	39	129.12 (0.36%)
Karambakudi	25962.8	51	102.21 (0.39%)
Manamelkudi	25120.3	35	86.07 (0.34%)
Total	464542.98	1566	4404.37 (.94%)

Values in parentheses are % of geographical area.

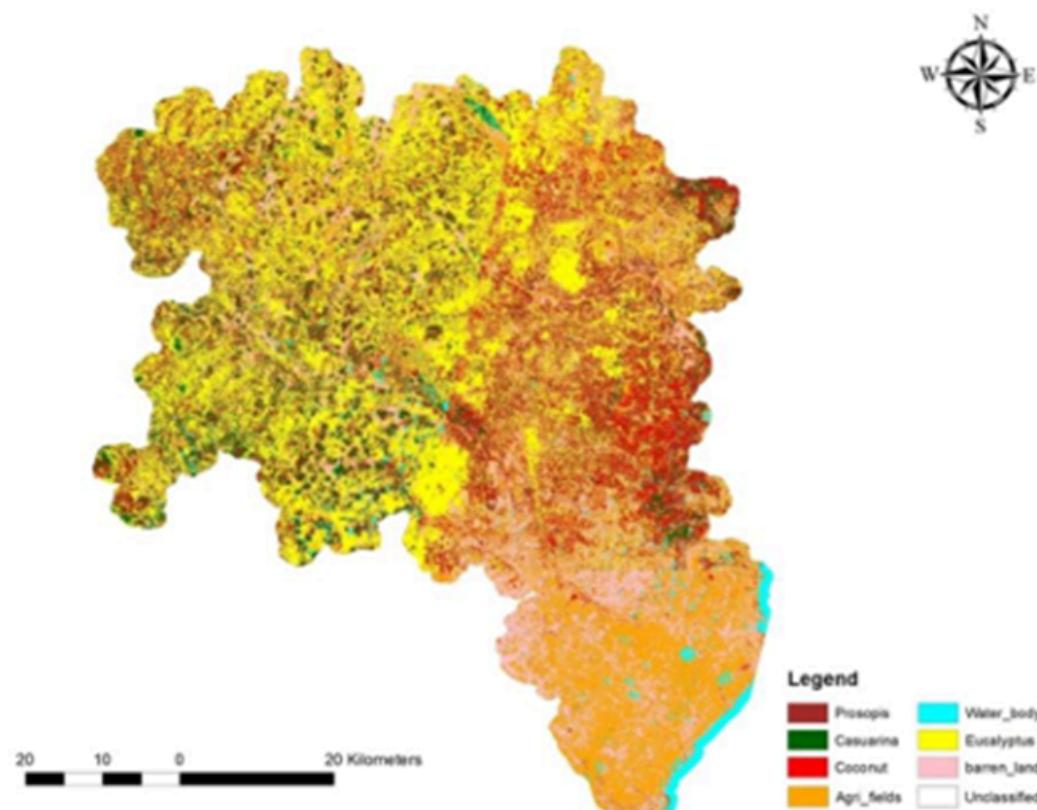


Figure 2: Extent of various landuse in Pudukkottai district

- <https://doi.org/10.23953/cloud.ijarsg.479>

Spatial Patterns & Clustering

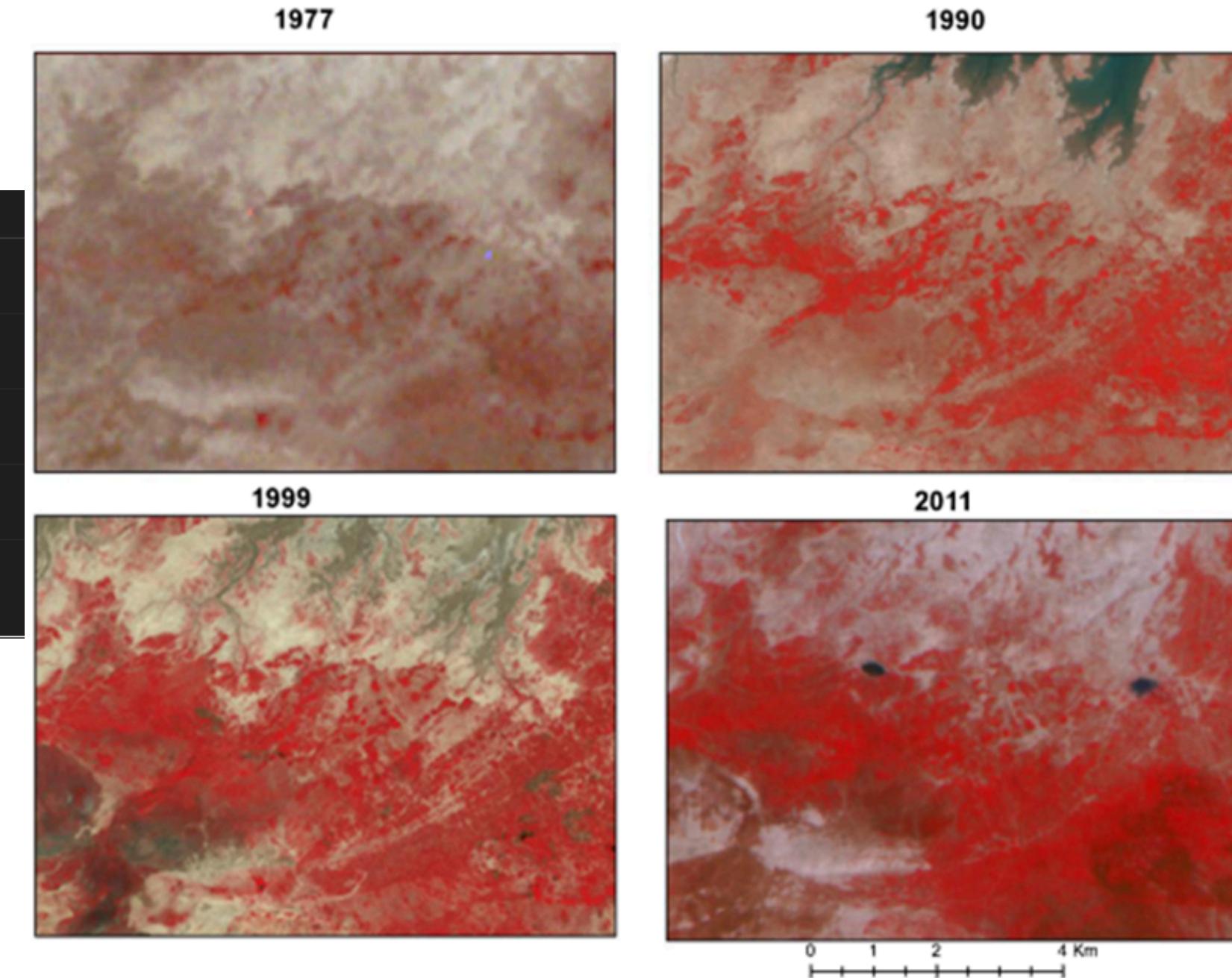
- 1,566 distinct patches totaling 4,404 ha (~0.94% of district)
- Highest density in Viralimalai (2.1%) & Avudayarkovil (1.6%) — largest and most contiguous biomass
- Three core zones along rivers: Viralimalai, Kulathur, Avudayarkovil—clustered linear invasions near Korai & Pambar water bodies
- Buffer Analysis:
 - 54% of greenery (2,386 ha) within 1 km of riversstreams
 - 38% (1,705 ha) along major roads

NDVI & Biomass Health (Viralimalai Example)

- Within 100 m of water (789 ha):
 - 59% patches high NDVI (0.5–1.0) = dense/healthy
- At 1 km buffer (2,386 ha total):
 - 42% high NDVI; 53% moderate (0.3–0.5)

- <https://doi.org/10.1007/s12040-014-0486-0>

Year	Prosopis Area (km ²)	% of Region
1977	~679	7.1%
1990	797	8.4%
1999	827	8.7%
2005	855	9.0%
2011	971	10.2%



- Increase of +292 km² (42.9%) from 1977 to 2011
- Annual spread: ~2.1% per year (2005–2011)

Patch Dynamics

- Largest patch expanded from 144 km² (1977) to 430 km² (2011)
- Mean patch size grew from 7.8 km² to 9.0 km²
- 95.9% of invasion occurred on grasslands; 4.1% on other land cover

Figure 4. False colour composite images of southern part of Great Rann of Kachchh, Kachchh Biosphere Reserve showing expansion of *Prosopis* in different time periods.

Table 1. Areal extent of land use/land cover of Great Rann of Kachchh, Kachchh Biosphere Reserve (area in km²).

Class	1977		1990		1999		2005		2011	
	Area	% of area								
Thorn scrub	160	1.7	157	1.6	158	1.7	158	1.7	159	1.7
<i>Prosopis</i> scrub	679	7.1	797	8.4	827	8.7	855	9.0	971	10.2
Grasslands	612	6.4	467	4.9	446	4.7	392	4.1	268	2.8
Agriculture/fallow	1679	17.6	1665	17.4	1655	17.3	1649	17.3	1649	17.3
Wetland	6402	67.1	6447	67.6	6432	67.4	6456	67.7	6455	67.6
Settlements	10	0.1	10	0.1	11	0.1	11	0.1	11	0.1
Salt pans	0	0	0	0.0	15	0.2	20	0.2	31	0.3
Grand total	9543	100	9543	100	9543	100	9543	100	9543	100

- <https://doi.org/10.1016/j.rser.2009.09.038>

Table 3

Spectral ranges of fuel wood tree species (in the remote sensing data) (based on December 2006, MSS data fused with PAN).

Village	Tree species						
	Eucalyptus	Prosopis Juliflora	Mangifera indica	Pongamia Pinnate	Acacia nilotica	Acacia auriculiformis	Tamarindus indica
Huttoor	83–92	98–105		106–108	76–80		93–96
Ganeshpura	85–96	98–104	107–110	103–107			94–96
Ramasandra	86–92		106–108		78–82		
Kondasandra			107–109			90–100	93–97
Kaparasiddanahalli	88–94					92–96	
Nandikamanahalli	84–93		106–110	104–106		89–96	
Iragasandra	87–96	99–104	109–111	103–108		89–95	
Antaragange	83–95						88–95
Sangondahalli	84–88						

Image Overview

- Top map (vector layer): Identifies multiple fuelwood species by patch:
 - Prosopis juliflora (yellow-green)
 - Eucalyptus, Tamarindus indica, Pongamia pinnata, Azadirachta indica, Mangifera indica, Glyricidia, plus agricultural crops.
- Bottom image (remote-sensing): High-resolution (5.8 m) satellite map highlighting spatial distribution of P. juliflora vs other tree stands.

Key Data & Metrics

- 30 villages surveyed using GPS and fused image classification (MSS + PAN data)
- Mapping accuracy: ~88% for P. juliflora, based on spectral signatures from ground samples
- Land-use strata delineated at 1:25,000 scale, enabling precise patch-level identification

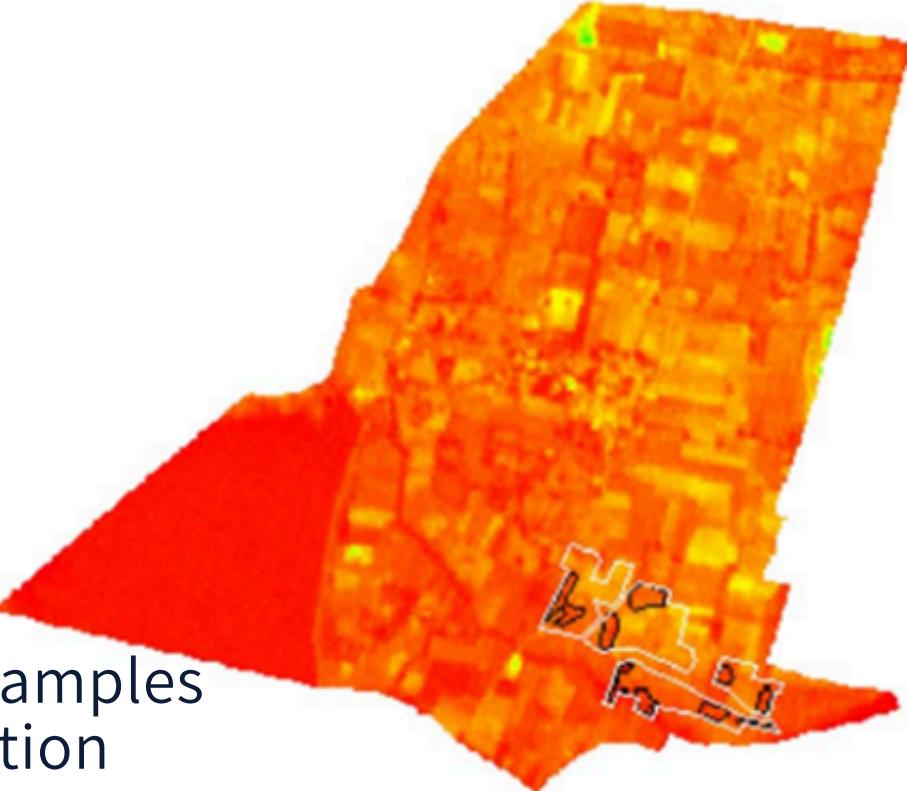


Fig. 7. (7.1) Vector layer of fuelwood species in Iragasandra village. (7.2) Remote sensing data (5.8 m spatial resolution) of Iragasandra

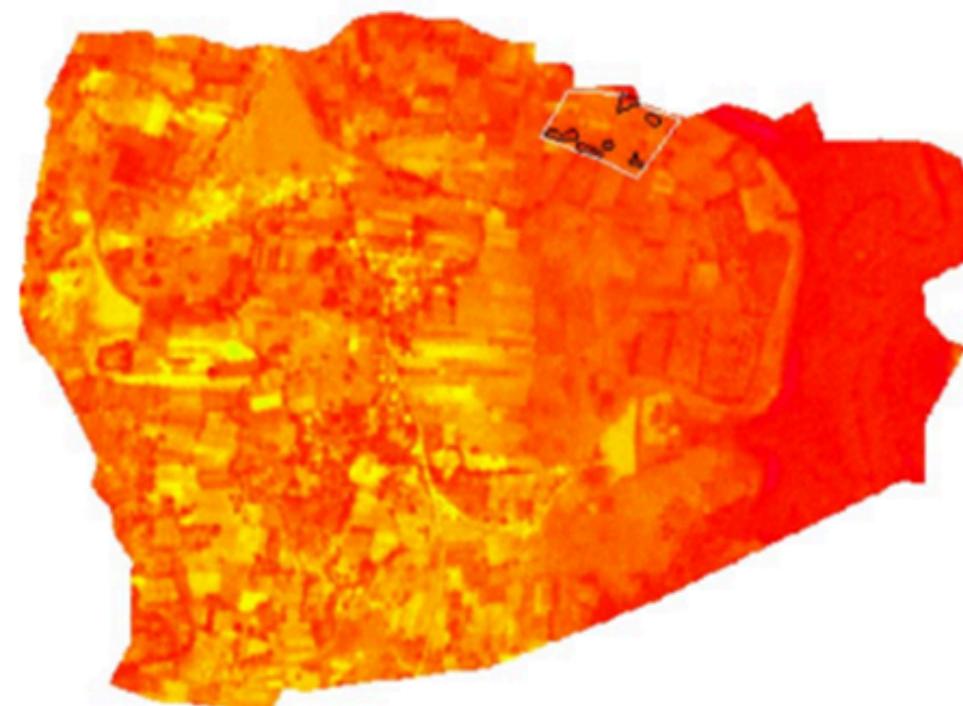
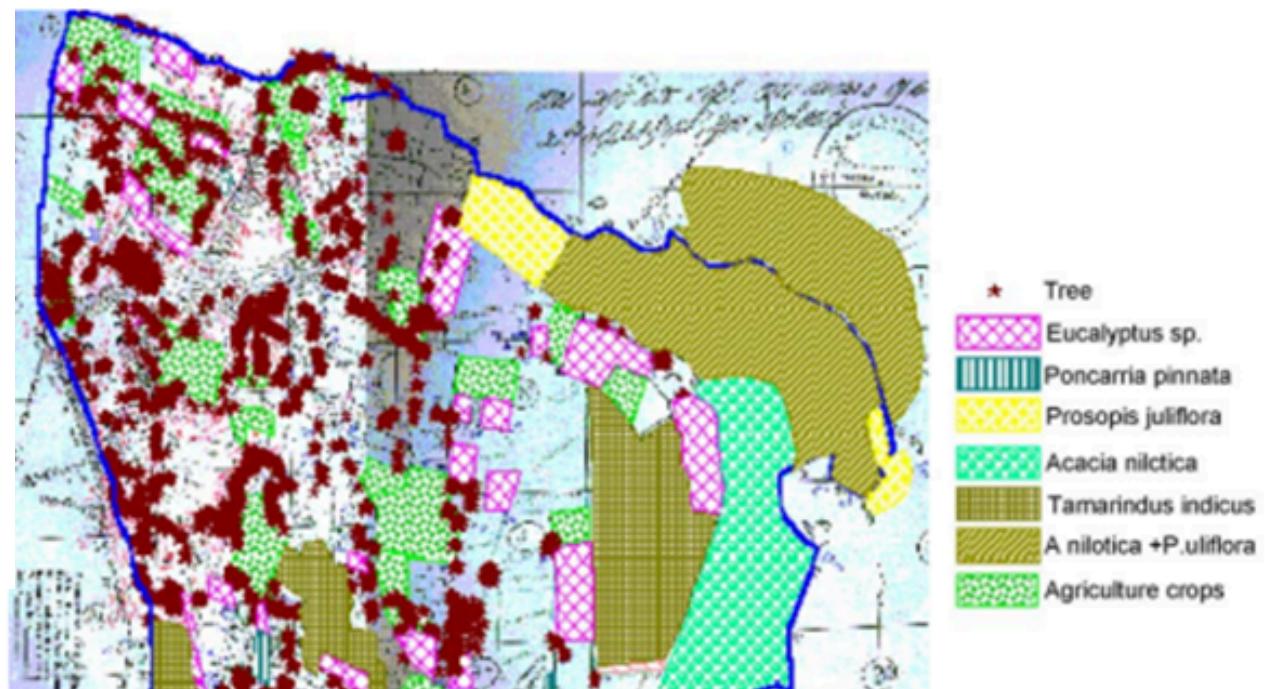
- <https://doi.org/10.1016/j.rser.2009.09.038>

Table 3

Spectral ranges of fuel wood tree species (in the remote sensing data) (based on December 2006, MSS data fused with PAN).

Village	Tree species						
	<i>Eucalyptus</i>	<i>Prosopis juliflora</i>	<i>Mangifera indica</i>	<i>Pongamia pinnata</i>	<i>Acacia nilotica</i>	<i>Acacia auriculiformis</i>	<i>Tamarindus indica</i>
Huttoor	83–92	98–105		106–108	76–80		93–96
Ganeshpura	85–96	98–104	107–110	103–107			94–96
Ramasandra	86–92		106–108		78–82		
Kondasandra			107–109			90–100	93–97
Kaparasiddanahalli	88–94					92–96	
Nandikamanahalli	84–93		106–110	104–106		89–96	
Iragasandra	87–96	99–104	109–111	103–108		89–95	
Antaragange	83–95						88–95
Sangondahalli	84–88						

- Top (Vector Layer):
 - Mapped species by spatial zones
 - *Prosopis juliflora* shown in yellow hatch, widely distributed
 - Other species include *Eucalyptus*, *Pongamia pinnata*, *Acacia nilotica*, *Tamarindus indica*, and crop zones
 - Red stars = GPS-verified tree sampling points
- Bottom (Remote Sensing Layer):
 - 5.8 m resolution satellite image
 - Shows canopy density and land surface variation; warmer colors = higher reflectance/canopy



- <https://doi.org/10.1007/s12145-021-00720-4>

Key Numbers & Trends

- Peak expansion in 2008 ($\sim 6.3 \text{ km}^2$)
- Annual spread range (2007–2012):
 $2.8\text{--}6.3 \text{ km}^2/\text{year}$
- Post-2008 trend: Moderate
stabilization ($\sim 4\text{--}5 \text{ km}^2/\text{year}$)

Fig. 12: spatial extent of *prosopis juliflora* in 2009

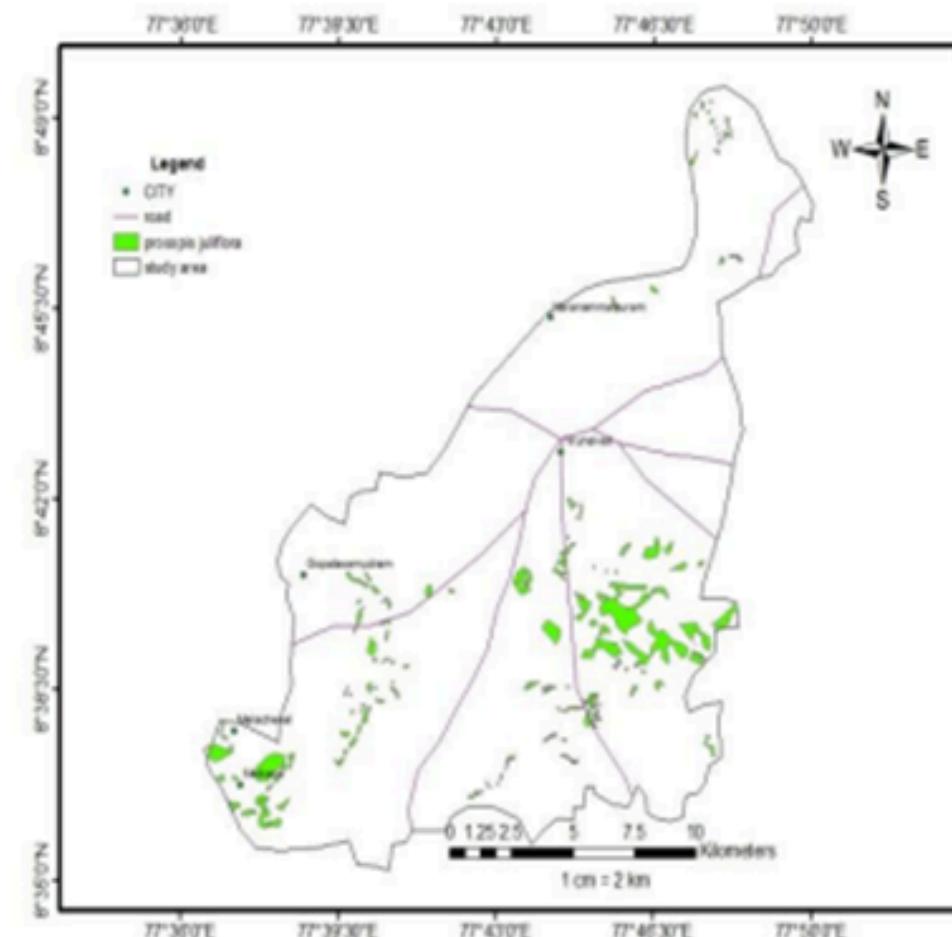


Fig. 13: spatial extent of *prosopis juliflora* in 2010

Fig. 15: spatial extent of *prosopis juliflora* in 2012

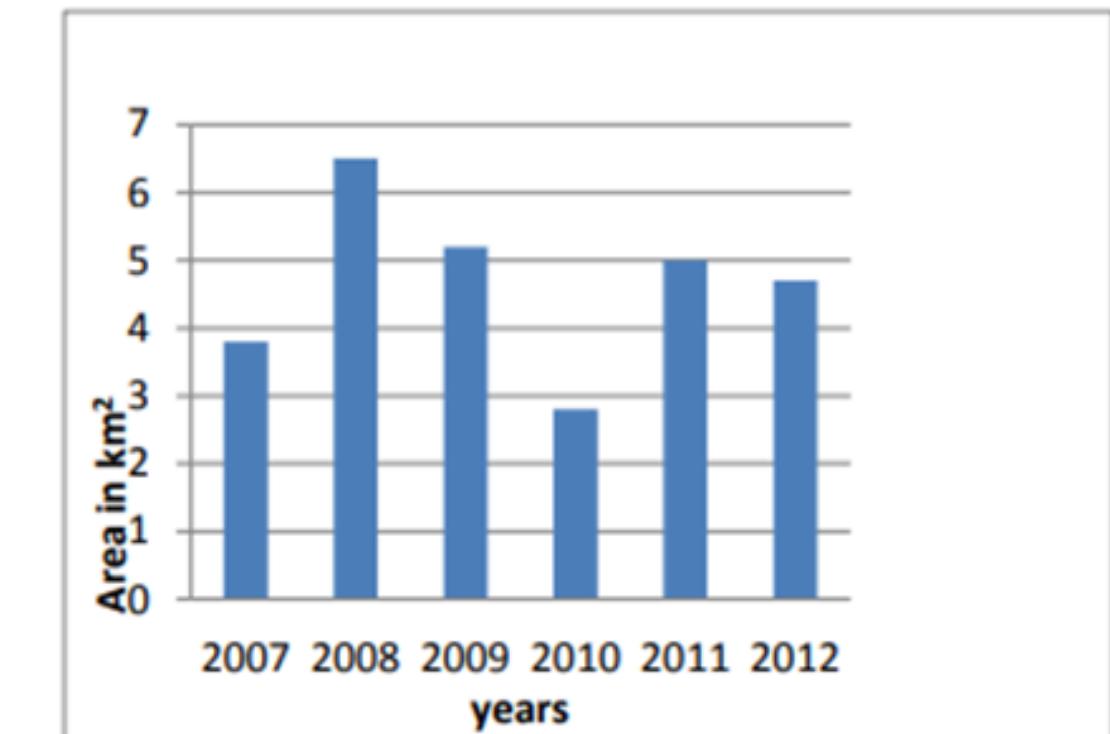


Fig. 16: spatial extent area of *prosopis juliflora*

Study Area Details:

- Region: Challakere Taluk, Karnataka
- Coordinates: Approx. 14.3°N to 14.5°N latitude and 76.5°E to 77°E longitude
- State: Karnataka
- District: Chitradurga
- Environment: Semi-arid, dry deciduous shrubland — ideal for *Prosopis juliflora* expansion due to degraded, open, and uncultivated lands.

- <https://doi.org/10.1016/j.rser.2009.08.006>

T.V. Ramachandra / Renewable and Sustai

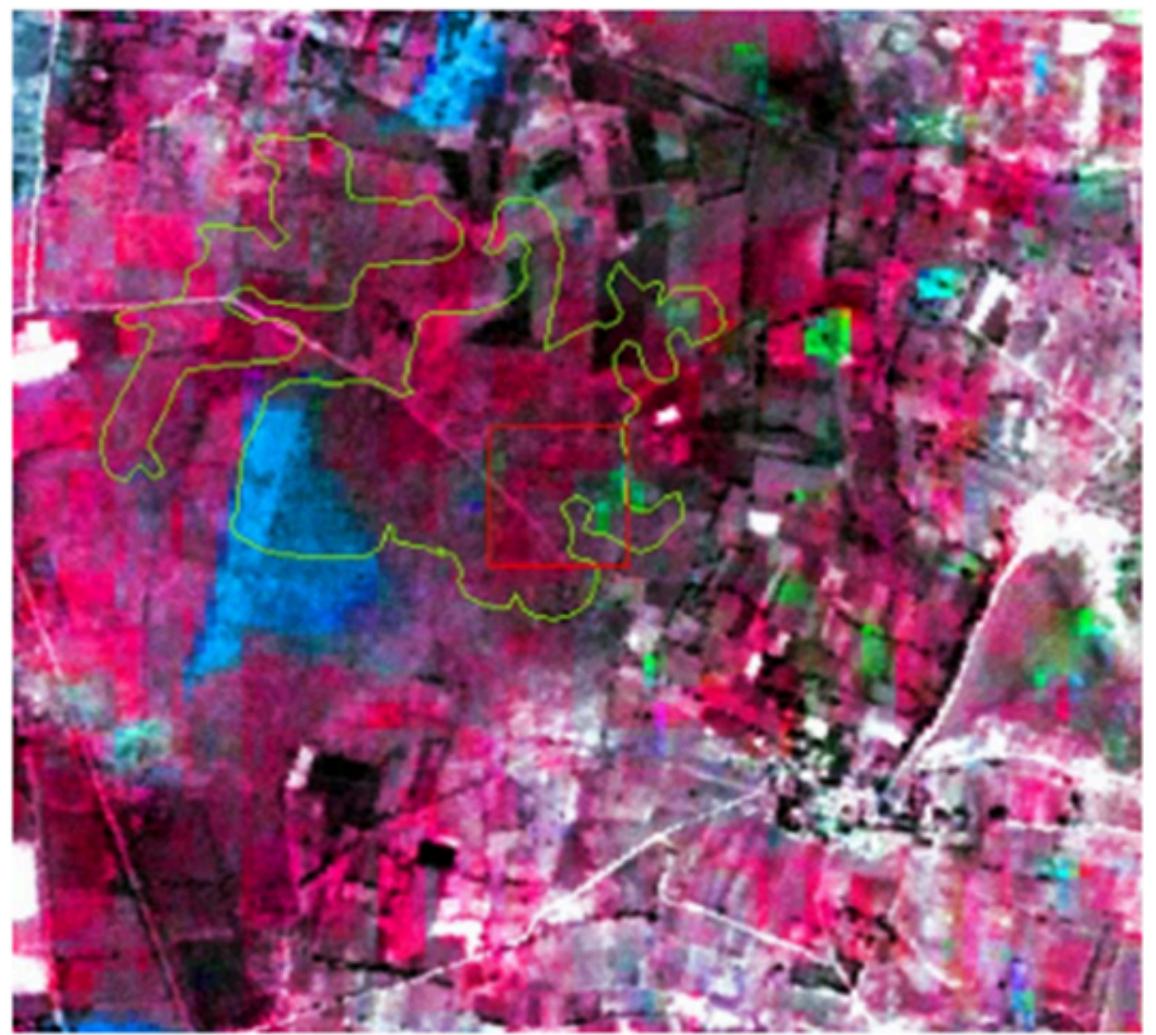


Fig. 12. Verification sites of *Prosopis juliflora* patches in Gauribidanur taluk.

- Spatial extent mapping:
- The analysis uses supervised classification on merged PAN (5.8 m) and multispectral imagery, mapping *P. juliflora* occurrences at the village level across Gauribidanur taluk, based on training from 30 villages in Kolar .
- Mapping accuracy:
- Achieved an ~88% overall accuracy in correctly classifying *P. juliflora* patches
- Household reliance on fuelwood:
- In rural Kolar, 85–95% of energy needs are met by traditional fuels, with *P. juliflora* among the preferred fuelwood species

nable Energy Reviews 14 (2010) 642–654



Fig. 10. Mapped *Prosopis juliflora* trees in Gauribidanur taluk (based on the training data collected from neighbouring Kolar taluk).

- <https://doi.org/10.1080/15324982.2018.1564402>
- Study conducted across 3 Rajasthan districts: Jodhpur, Pali, Sirohi
- Sites mapped in community grazing lands (CGLs) – key zones for *P. juliflora* invasion
- Field data from these areas used to assess:
- Soil fertility (\uparrow SOC, nutrients under canopy)
- Impact on native biodiversity (\downarrow under dense canopy)
- Biomass utility (High economic return via charcoal from *P. juliflora*)
- Strong potential for biochar production as a strategy to both control invasion and restore land productivity

4 C. B. PANDEY ET AL.

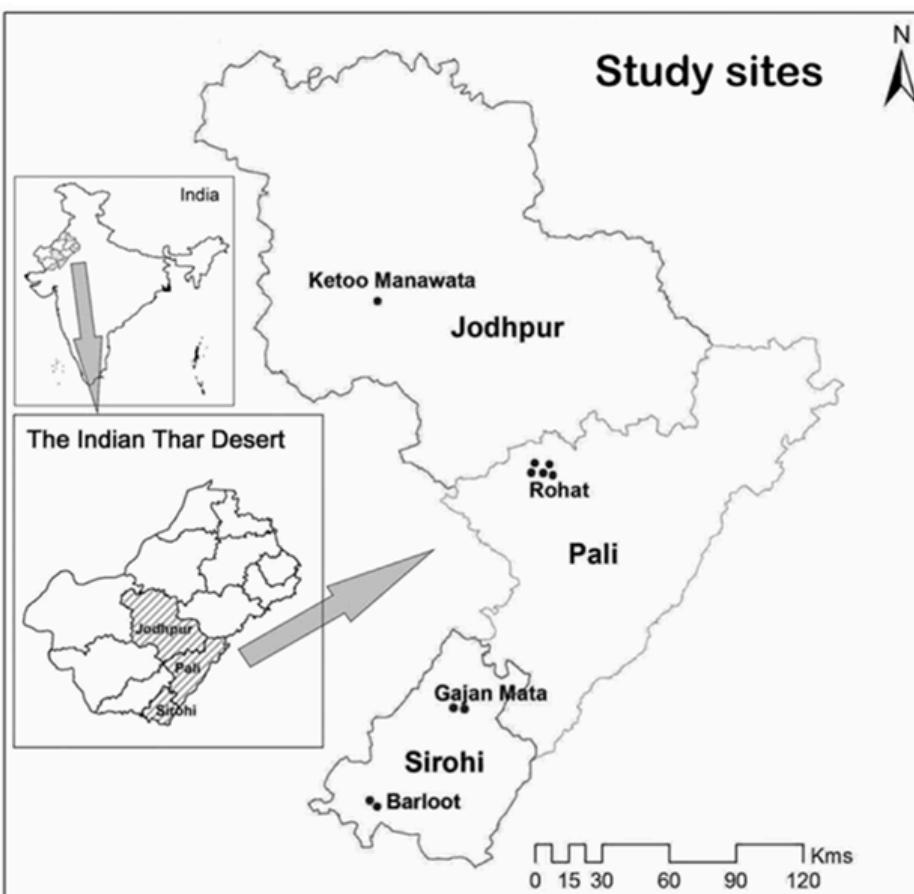


Table 1. Dimensions (i.e. canopy size and height) of *P. juliflora* shrub, and light intensity, soil moisture and importance value index (IVI) of native plant species under the shrub in the community grazing lands (CGLs) in the Indian Thar Desert. Data are mean \pm SD.

IVI of native species under <i>P. juliflora</i> shrub	Canopy size			
	Small	Medium	Large	Open plot/No-canopy
Canopy cover (m ²)	^a 6.92 \pm 1.26	^b 33.19 \pm 4.62	^c 59.54 \pm 4.54	0.00
Light intensity (Lux)	^a 30202.02 \pm 1418.02	^b 22098.01 \pm 844.03	^c 1160.03 \pm 73.04	^d 48700.11 \pm 2850.01
Soil moisture (%)	^a 6.18 \pm 0.84	^b 9.18 \pm 0.89	^c 14.20 \pm 1.80	^d 4.09 \pm 0.65
Perennial grass				
<i>Cenchrus biflorus</i> Hook. f.	^a 2.80 \pm 0.74	^b 1.50 \pm 0.34	0.00	^c 5.91 \pm 2.11
<i>Dichanthium annulatum</i> (Forsk.) Stapf	^a 2.01 \pm 0.54	^b 2.10 \pm 0.46	0.00	^b 5.80 \pm 2.10
Annual grass				
<i>Aristida funiculata</i> Trin. et Rupr.	^a 20.21 \pm 1.80	0.00	0.00	^b 5.11 \pm 1.20
<i>Digitaria</i> spp. Heist. ex Fab.	0.00	0.00	0.00	^c 3.50 \pm 1.09
<i>Eleusine compressa</i> (Forsk.) Aschers. et Schweinf.	0.00	^a 10.11 \pm 0.84	0.00	^b 5.30 \pm 0.58
<i>Eragrostis ciliaris</i> (Linn.) R. Br.	0.00	0.00	0.00	^d 3.31 \pm 0.80
<i>Brachiaria</i> spp. Griseb.	0.00	^a 21.20 \pm 7.70	^b 4.52 \pm 0.46	^c 7.60 \pm 1.47
<i>Melanocenchrus jacquemontii</i> Jaub. et Spach.	0.00	^a 18.52 \pm 1.59	0.00	0.00
<i>Oropetium thomaeum</i> (Linn. f.) Trin.	0.00	^a 17.80 \pm 2.66	0.00	^b 7.71 \pm 1.08
<i>Tetrapogon tenellus</i> (Roxb.) Chiov.	0.00	0.00	^a 9.01 \pm 2.03	^a 7.12 \pm 2.22
Perennial forb				
<i>Tephrosia purpurea</i> (Linn.) Pers.	9.01 \pm 1.02	0.00	0.00	0.00
Annual non forb				
<i>Boerhavia diffusa</i> Linn.	0.00	0.00	0.00	^c 2.90 \pm 0.24
<i>Corchorus tridens</i> Linn.	0.00	0.00	0.00	^b 3.81 \pm 1.09
<i>Cyperus</i> spp. Linn.	0.00	0.00	^a 40.91 \pm 4.30	^b 16.90 \pm 4.12
<i>Euphorbia hirta</i> Linn.	0.00	0.00	0.00	^d 4.71 \pm 1.47
<i>Gisekia pharnacioides</i> Linn.	30.91 \pm 3.15	0.00	0.00	0.00
<i>Indigofera cardifolia</i> Heyne ex Roth	0.00	0.00	0.00	^c 3.71 \pm 1.06
<i>Peristrophe bicalyculata</i> (Retz.) Nees	^a 23.61 \pm 4.70	^b 29.60 \pm 2.90	^c 45.81 \pm 8.65	^a 11.02 \pm 2.10
<i>Sonchus asper</i> Fig.	7.81 \pm 0.50	0.00	0.00	0.00
<i>Tragus biflorus</i> (Roxb.) Schult.	^a 3.81 \pm 0.08	0.00	0.00	^a 4.01 \pm 0.5
<i>Tribulus terrestris</i> Linn.	0.00	0.00	0.00	^c 2.11 \pm 1.20
Diversity parameters				
Richness (Margalef number)	8	7	4	17
Diversity (Shannon and Weaver number)	1.74	1.67	1.07	2.69
Equitability (Whittaker number)	0.87	0.92	0.84	0.96

Data with same superscript letter in a row are not significant at $p < 0.05$.

- <https://doi.org/10.1080/15324982.2018.1564402>
- Study conducted across 3 Rajasthan districts: Jodhpur, Pali, Sirohi
- Sites mapped in community grazing lands (CGLs) – key zones for *P. juliflora* invasion
- Field data from these areas used to assess:
- Soil fertility (\uparrow SOC, nutrients under canopy)
- Impact on native biodiversity (\downarrow under dense canopy)
- Biomass utility (High economic return via charcoal from *P. juliflora*)
- Strong potential for biochar production as a strategy to both control invasion and restore land productivity

4 C. B. PANDEY ET AL.

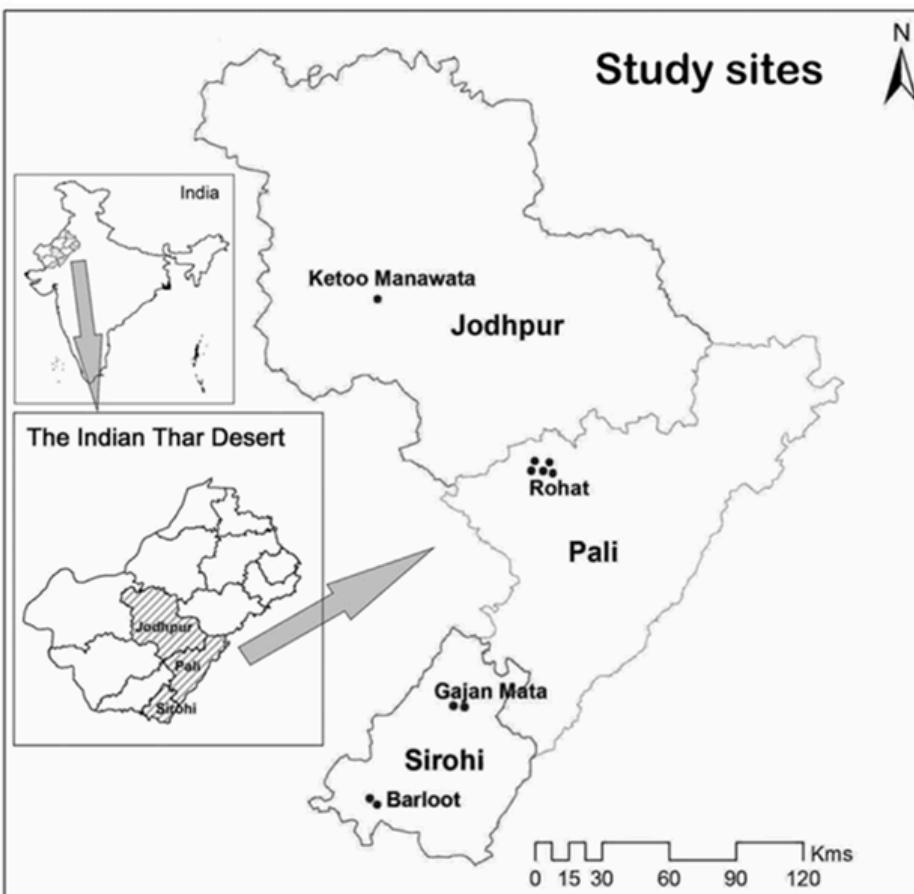


Table 1. Dimensions (i.e. canopy size and height) of *P. juliflora* shrub, and light intensity, soil moisture and importance value index (IVI) of native plant species under the shrub in the community grazing lands (CGLs) in the Indian Thar Desert. Data are mean \pm SD.

IVI of native species under <i>P. juliflora</i> shrub	Canopy size			
	Small	Medium	Large	Open plot/No-canopy
Canopy cover (m ²)	^a 6.92 \pm 1.26	^b 33.19 \pm 4.62	^c 59.54 \pm 4.54	0.00
Light intensity (Lux)	^a 30202.02 \pm 1418.02	^b 22098.01 \pm 844.03	^c 1160.03 \pm 73.04	^d 48700.11 \pm 2850.01
Soil moisture (%)	^a 6.18 \pm 0.84	^b 9.18 \pm 0.89	^c 14.20 \pm 1.80	^d 4.09 \pm 0.65
Perennial grass				
<i>Cenchrus biflorus</i> Hook. f.	^a 2.80 \pm 0.74	^b 1.50 \pm 0.34	0.00	^c 5.91 \pm 2.11
<i>Dichanthium annulatum</i> (Forsk.) Stapf	^a 2.01 \pm 0.54	^b 2.10 \pm 0.46	0.00	^b 5.80 \pm 2.10
Annual grass				
<i>Aristida funiculata</i> Trin. et Rupr.	^a 20.21 \pm 1.80	0.00	0.00	^b 5.11 \pm 1.20
<i>Digitaria</i> spp. Heist. ex Fab.	0.00	0.00	0.00	^c 3.50 \pm 1.09
<i>Eleusine compressa</i> (Forsk.) Aschers. et Schweinf.	0.00	^a 10.11 \pm 0.84	0.00	^b 5.30 \pm 0.58
<i>Eragrostis ciliaris</i> (Linn.) R. Br.	0.00	0.00	0.00	^d 3.31 \pm 0.80
<i>Brachiaria</i> spp. Griseb.	0.00	^a 21.20 \pm 7.70	^b 4.52 \pm 0.46	^c 7.60 \pm 1.47
<i>Melanocenchrus jacquemontii</i> Jaub. et Spach.	0.00	^a 18.52 \pm 1.59	0.00	0.00
<i>Oropetium thomaeum</i> (Linn. f.) Trin.	0.00	^a 17.80 \pm 2.66	0.00	^b 7.71 \pm 1.08
<i>Tetrapogon tenellus</i> (Roxb.) Chiov.	0.00	0.00	^a 9.01 \pm 2.03	^a 7.12 \pm 2.22
Perennial forb				
<i>Tephrosia purpurea</i> (Linn.) Pers.	9.01 \pm 1.02	0.00	0.00	0.00
Annual non forb				
<i>Boerhavia diffusa</i> Linn.	0.00	0.00	0.00	^c 2.90 \pm 0.24
<i>Corchorus tridens</i> Linn.	0.00	0.00	0.00	^b 3.81 \pm 1.09
<i>Cyperus</i> spp. Linn.	0.00	0.00	^a 40.91 \pm 4.30	^b 16.90 \pm 4.12
<i>Euphorbia hirta</i> Linn.	0.00	0.00	0.00	^d 4.71 \pm 1.47
<i>Gisekia pharnacioides</i> Linn.	30.91 \pm 3.15	0.00	0.00	0.00
<i>Indigofera cardifolia</i> Heyne ex Roth	0.00	0.00	0.00	^c 3.71 \pm 1.06
<i>Peristrophe bicalyculata</i> (Retz.) Nees	^a 23.61 \pm 4.70	^b 29.60 \pm 2.90	^c 45.81 \pm 8.65	^a 11.02 \pm 2.10
<i>Sonchus asper</i> Fig.	7.81 \pm 0.50	0.00	0.00	0.00
<i>Tragus biflorus</i> (Roxb.) Schult.	^a 3.81 \pm 0.08	0.00	0.00	^a 4.01 \pm 0.5
<i>Tribulus terrestris</i> Linn.	0.00	0.00	0.00	^c 2.11 \pm 1.20
Diversity parameters				
Richness (Margalef number)	8	7	4	17
Diversity (Shannon and Weaver number)	1.74	1.67	1.07	2.69
Equitability (Whittaker number)	0.87	0.92	0.84	0.96

Data with same superscript letter in a row are not significant at $p < 0.05$.

- Wildlife Institute of India & TN Forest Dept. (2018)- Study on ecological and socio-economic impact of *Prosopis juliflora* in Tamil Nadu.

- Tree Density: *P. juliflora* reaches up to 182 trees/ha in southern Tamil Nadu's dense stands.
- District Comparisons:
- Cauvery delta (Nagapattinam): ~7.4 trees per plot (15 m radius)
- Southern zone: ~13 trees per plot – highest density
- Western zone: ~6.2 trees per plot
- Mapping Insight: Fig. 7 delineates zones from “Very Low” to “Very High” density—consistent with these quantitative observations.
- Biochar Relevance:
- High tree densities indicate readily available biomass for biochar production.
- Even moderate densities (~7–13 trees/plot) translate to significant biomass when scaled to hectare-level collection.

Figure 7 – Nagapattinam District (Cauvery Delta Zone)

- Tree density per plot:
- $\sim 7.41 \pm 1.63$ trees (15 m-radius plot)
- Relative invasion extent:
- Southern zone (Ramanathapuram) had 79.4% of overall invaded area; western zone 46%; delta zone 32%
- Density classification in map:
- Several Very High density hot spots (dark red/purple), particularly in taluks like Kilvelur, Kuthalam, Thirukkuvalai, plus scattered medium and low zones elsewhere.

It was estimated about 182 trees of *P. juliflora* per hectare from the *P. juliflora* dominated habitat in the southern zone but the estimated desinsity of *P. juliflora* was comparatively low in other zones of Tamil Nadu. Study found that the open areas that were previously used for agriculture or other form of land-use were more conducive for invasion of *P. juliflora* than the forested landscape. This might be possible due to the fact that the open areas or highly disturbed areas are more prone for invasion by alien species as it was reported from elswhere (Ruijven et al. 2003). The distribution patters of *P. juliflora* in Cauvery delta zone, southern zone and western zone of Tamil nadu were revealed in (Fig. 7, 8 and 9).

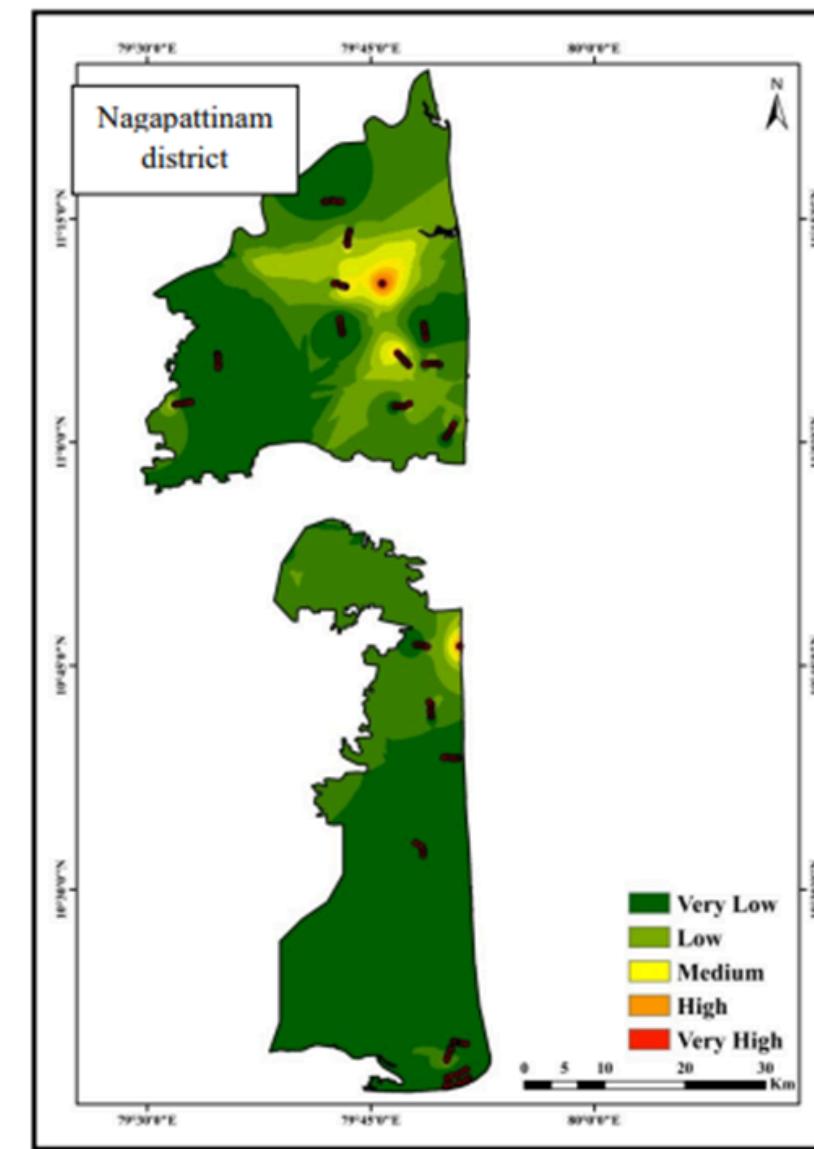


Fig. 7 Distribution and population status of *Prosopis juliflora* in Nagapattinam district,

- Wildlife Institute of India & TN Forest Dept. (2018)- Study on ecological and socio-economic impact of *Prosopis juliflora* in Tamil Nadu.
 - Figure 8 – Ramanathapuram District (Southern Zone)
 - Tree density per 15 m-radius plot:
 - 12.99 ± 0.91 trees
 - Maximum density per hectare (in dense patches):
 - ~182 trees/ha
 - Spatial classification (in Fig. 8 map):
 - Zones marked as Low, Medium, High density—large red zones correspond to ~182 trees/ha.
 - Patch types:
 - Higher invasion in open landscapes, farmland edges, and fallow lands; forested areas saw lower invasion.

Distribution of *Prosopis juliflora* – Western Zone (Erode, Sathyamangalam TR)---FIG 9

Bullet Points:

- Avg Density: 6.2 trees/plot (15 m radius), lower than southern zone
- High invasion zones near roads, settlement fringes
- Patchy invasion pattern, mostly low density with few hotspots
- 46% of total invaded area falls in the western zone (across all 3 regions)
- Favors disturbed lands, less spread in dense forest interiors
- Supports targeted biomass harvesting without affecting protected zones

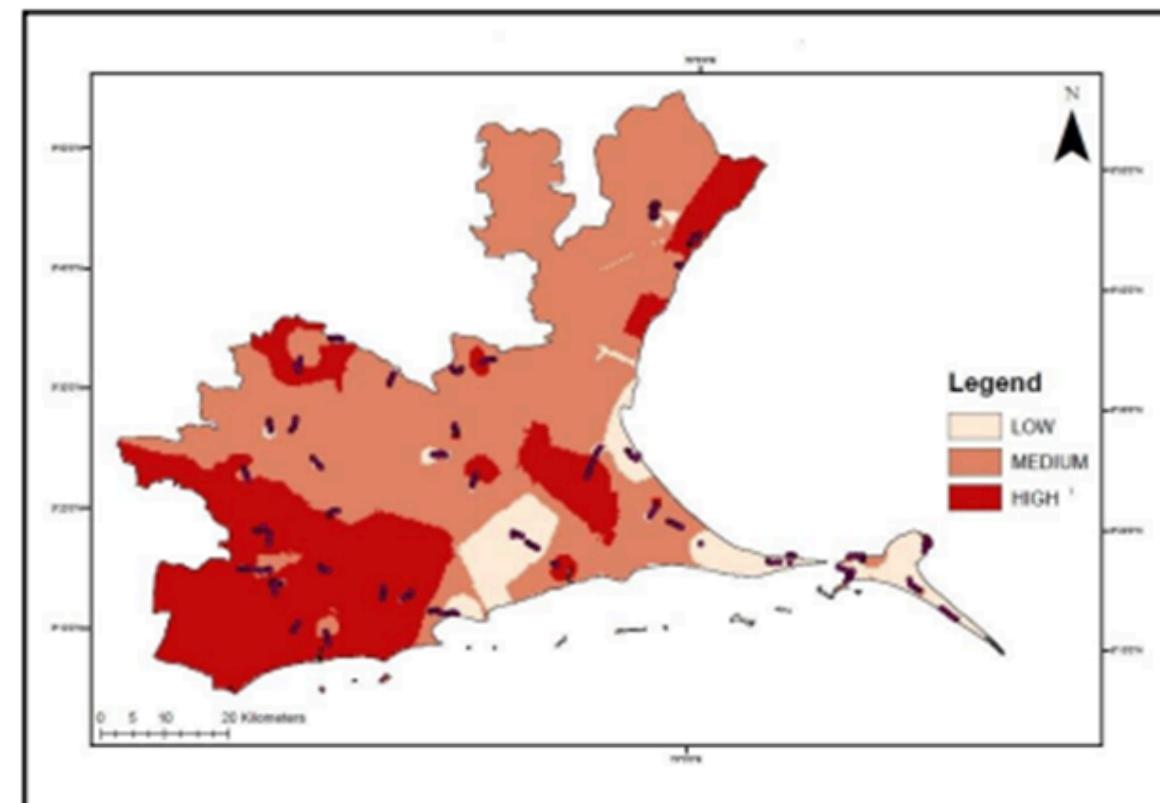


Fig. 8 Distribution and population status of *Prosopis juliflora* in Ramanathapuram district, southern zone of Tamil Nadu

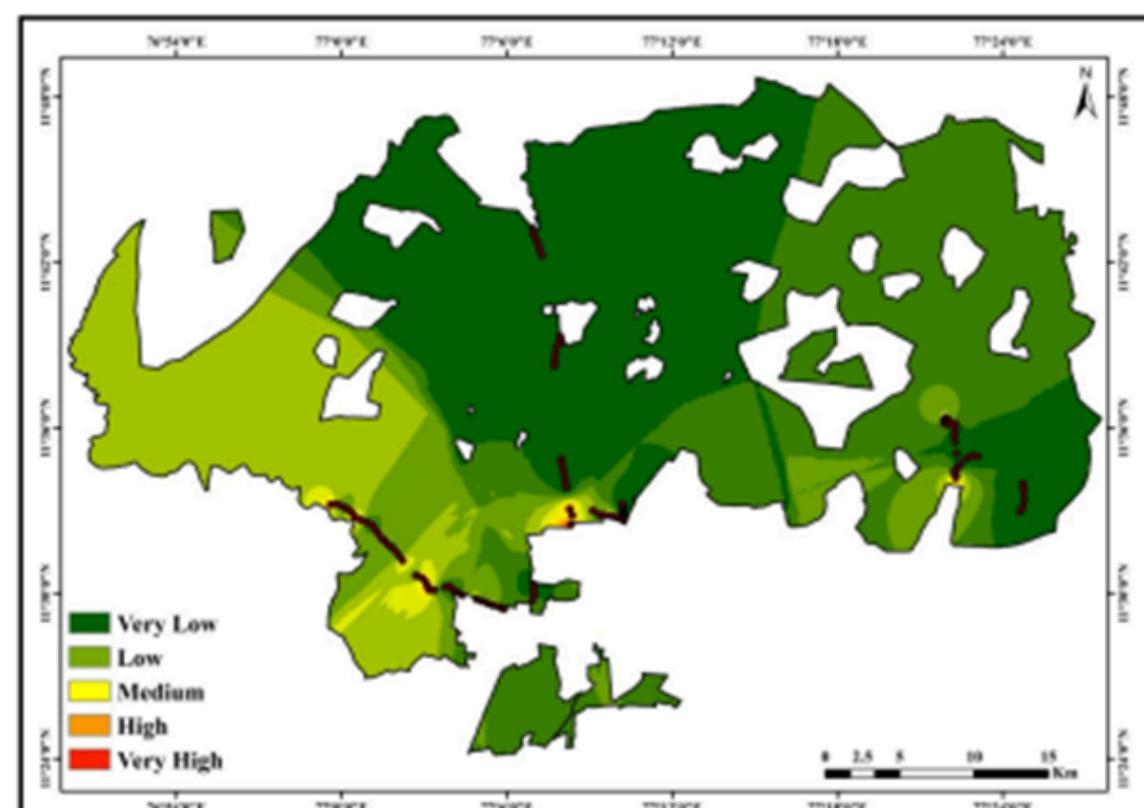


FIG 9

- Rajasthan State govt Data

Table 1. *Prosopis juliflora* assessment on forest land

S No.	Panchayat Samiti	Forest Land	Total Area (Hectares)	Juliflora planted area (Hectares)	% Density Juliflora	Category
1	Sanchor	a) Bhavatara	1200	1200	95%	Very dense
		b) Galitakhar	492.42	492.42	90%	Reasonable dense
		c) Rankhar	6227	4000	50%	Sparse planting
2	Raniwara	Kuri Sariana	3236.50	2335	55%	Sparse planting
3	Bhinmal	a) Jujani	1779	1200	90%	Reasonable dense
		b) Hatimtal	979	550	90%	Reasonable dense
4	Jalore	Jalore	300	225	98%	Dense
5	Sayla	a) Poshana	92.72	97.72	98%	Dense
		b) Detakhurd	472.72	472.72	95%	Dense

In the above mentioned Table the per hectare harvest figures of different categories of *P. juliflora* plantation is as under:

- <https://doi.org/10.23953/cloud.ijarsg.479>

What the Map Shows:

- Triangles (\blacktriangle): Invaded sites where *P. juliflora* is prevalent (PJIL).
- Stars (\star): Non-invaded reference sites (PJVIL).
- Mapped across Tiruchirappalli and Pudukkottai districts in southern Tamil Nadu.

Quantitative Highlights

- Invaded Land Area in Pudukkottai:
 - ~4,404.37 ha invaded, covering 0.94% of district area .
- Taluk-level extent:
 - Viralimalai taluk: 1,083.49 ha (2.1%)
 - Avudayarkovil: 697.59 ha (1.6%)
 - Others range from 86–462 ha .
- Spatial buffers:
 - 54% (~2,386 ha) of invasion within 1 km of streams
 - 38% (~1,705 ha) within 1 km of major roads

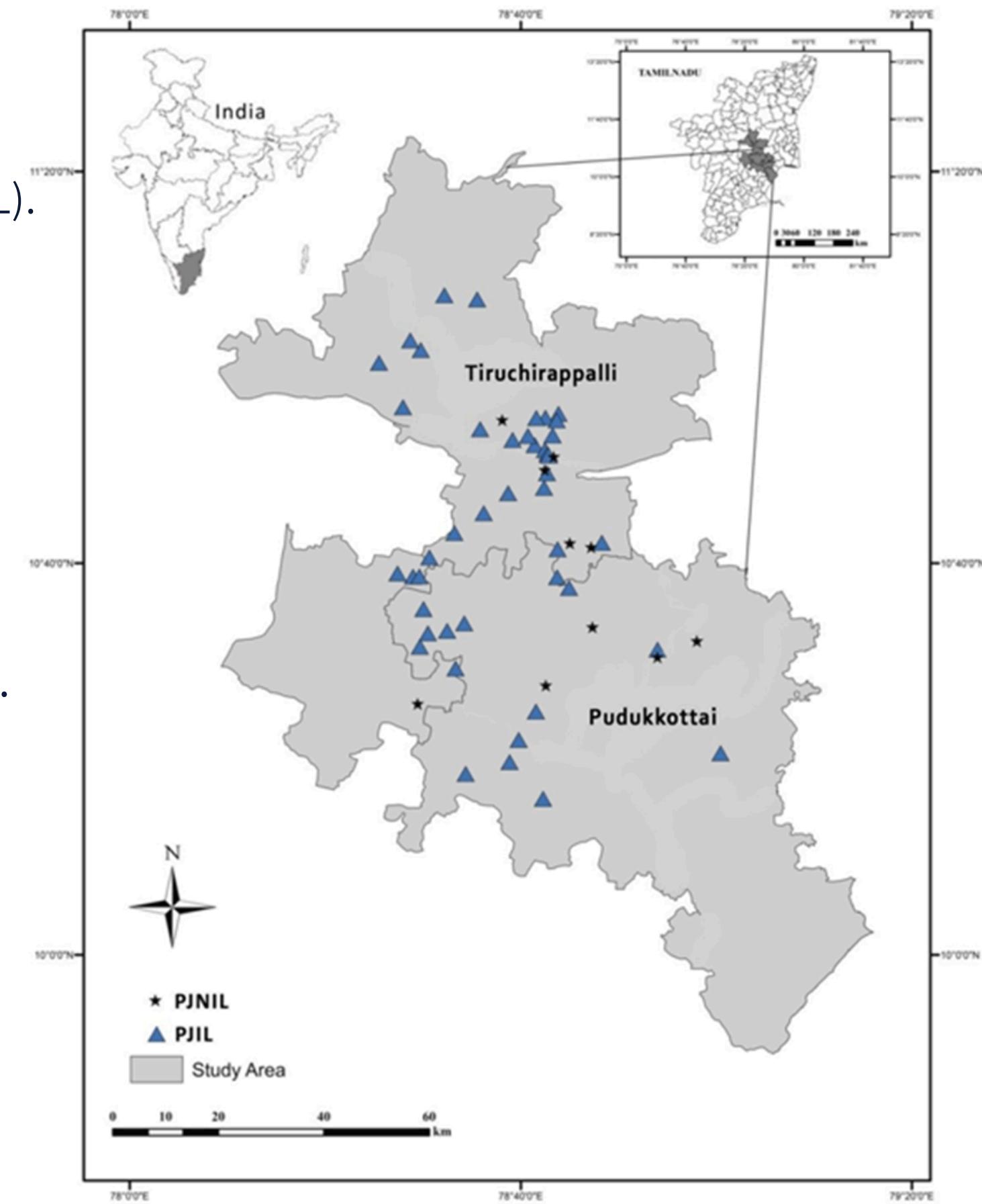


Fig. 1. *Prosopis juliflora* invaded and Non-invaded lands across the study area Tiruchirappalli and Pudukkottai, Tamil Nadu, India.