

# **Biodiversities 2010**

**An International Conference of Urban  
Protected Areas Network**

**September 6-8, 2010**

**Paris, France**

**Presenter- Suresh Thorat- India**

# **Organization of the Presentation**

- **Overview of Urban Protected Areas**
- **India- Forest Cover and Protected Areas**
- **Maharashtra State – At a Glance**
- **Detailed Overview- Sanjay Gandhi National Park, Borivali, Mumbai**

# **Expected Outcome**

- **Build awareness of Urban Protected Areas**
- **Strengthen Learning Partnerships**
- **Progress towards a Book**

# Context

- **Growing Urbanization and Socio-Spatial inequalities**
- **Cities and Protected Areas**
- **Impacts of Urbanization on Protected Areas**
- **Extreme need of Nature in Cities**

# **Stakes- Southern Cities**

- **Protected Areas in 4 Major Cities**

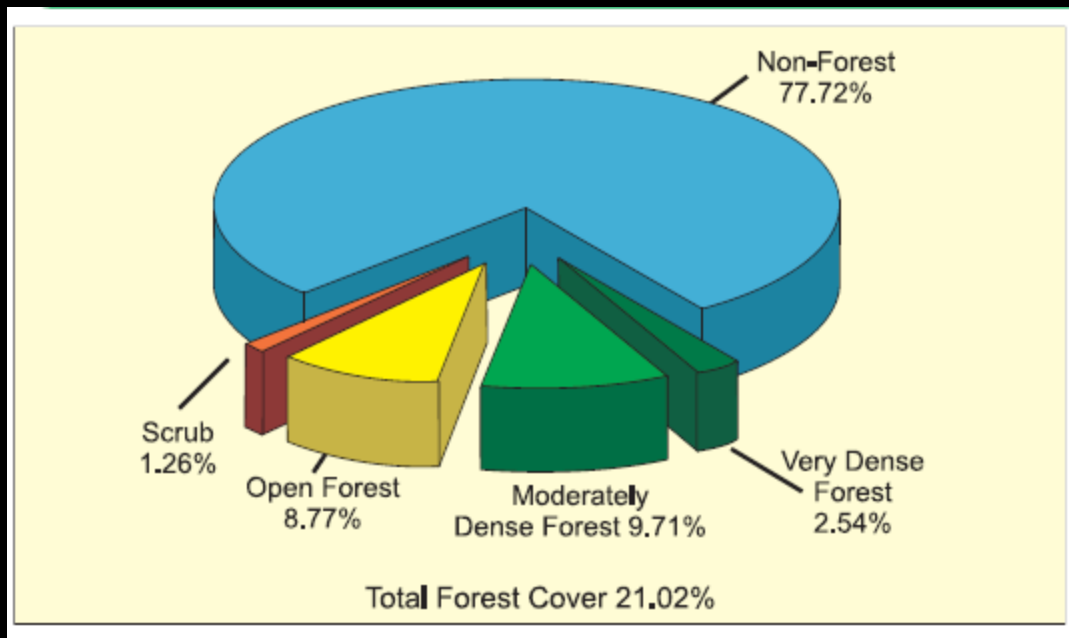
- **Tijuca National Park- Rio de Janeiro- Brazil**

- **Nairobi National Park- Nairobi- Kenya**

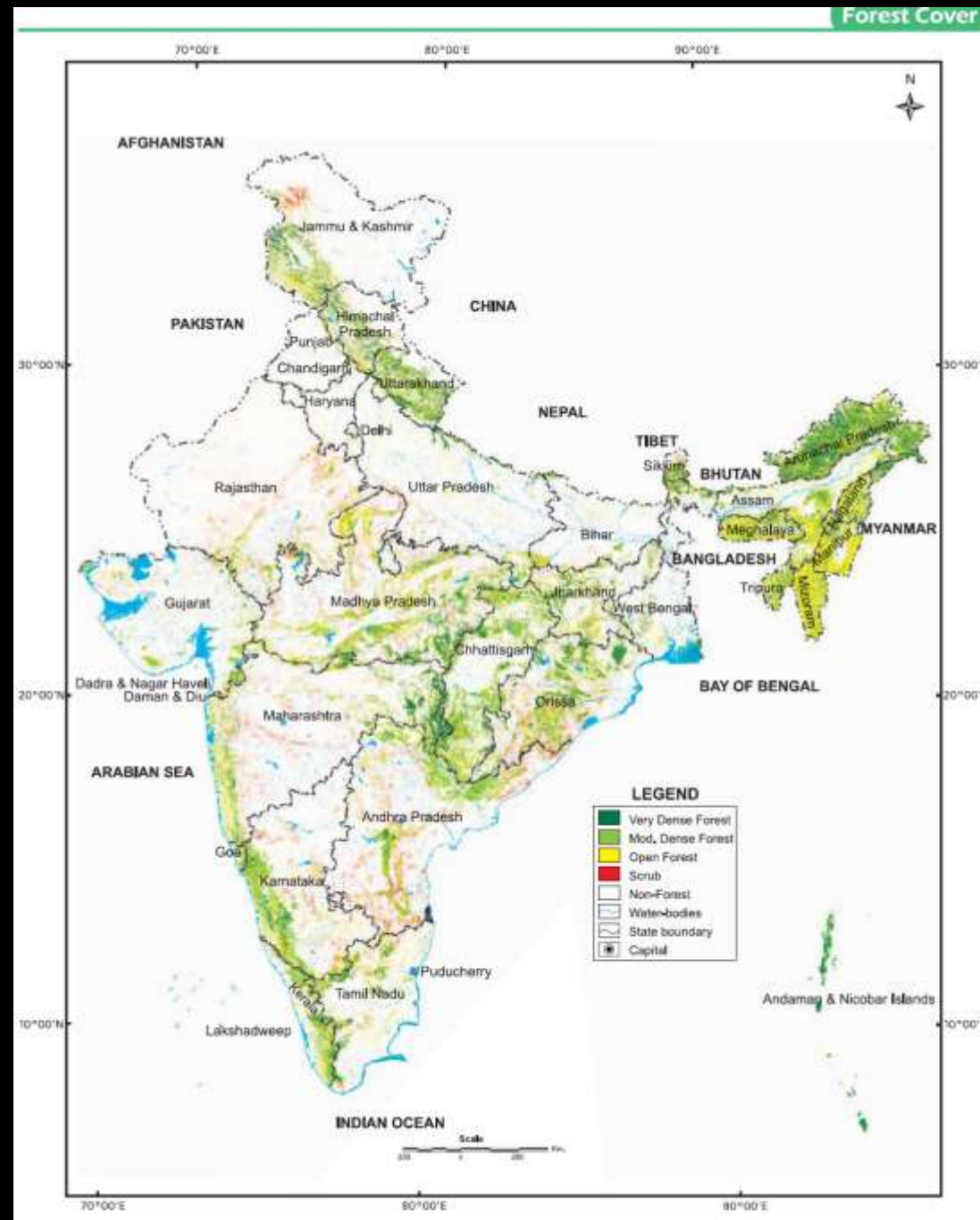
- **Sanjay Gandhi National Park- Mumbai-  
India**

- **Table Mountain National Park- Cape Town-  
South Africa**

# Forest Cover of India



**State of Forest Report-2009**  
**Forest Survey of India**  
**Govt. of India**



# Protected Areas in India

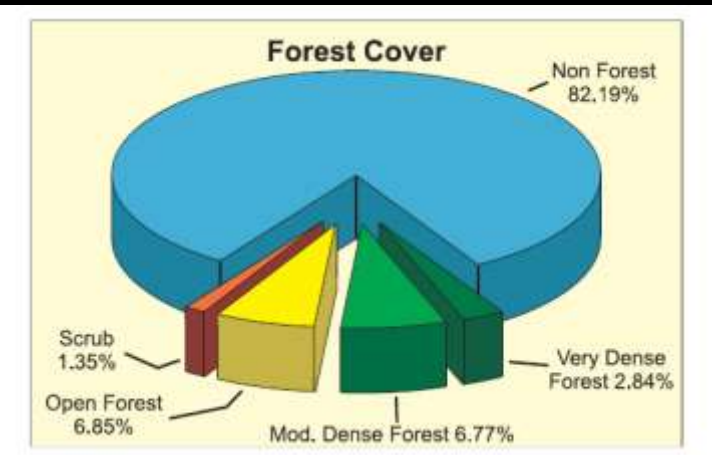
Exiting Protected Areas							
India	Area in Sq. Kms	No. of NPs	Area in Sq.Km.	% of Geog. Area	No. of WLSs	Area in Sq.km.	% of Geog. Area
	<b>3287263</b>	<b>89</b>	<b>37530.76</b>	<b>1.14</b>	<b>489</b>	<b>117042.04</b>	<b>3.56</b>
Proposed Protected Areas							
	<b>3287263</b>	<b>74.00</b>	<b>17258.48</b>	<b>0.53</b>	<b>218.00</b>	<b>16933.07</b>	<b>0.52</b>
Maharashtra Existing Protected Areas							
	<b>307713</b>	<b>5</b>	<b>955.93</b>	<b>0.31</b>	<b>35</b>	<b>14376.56</b>	<b>4.67</b>
Maharashtra Proposed Protected Areas							
	<b>307713</b>	<b>6.00</b>	<b>1308.61</b>	<b>0.43</b>	<b>15.00</b>	<b>-6567.77</b>	<b>-2.13</b>

**India: 31- Tiger Reserves and 15 Bioshpere Reserves**

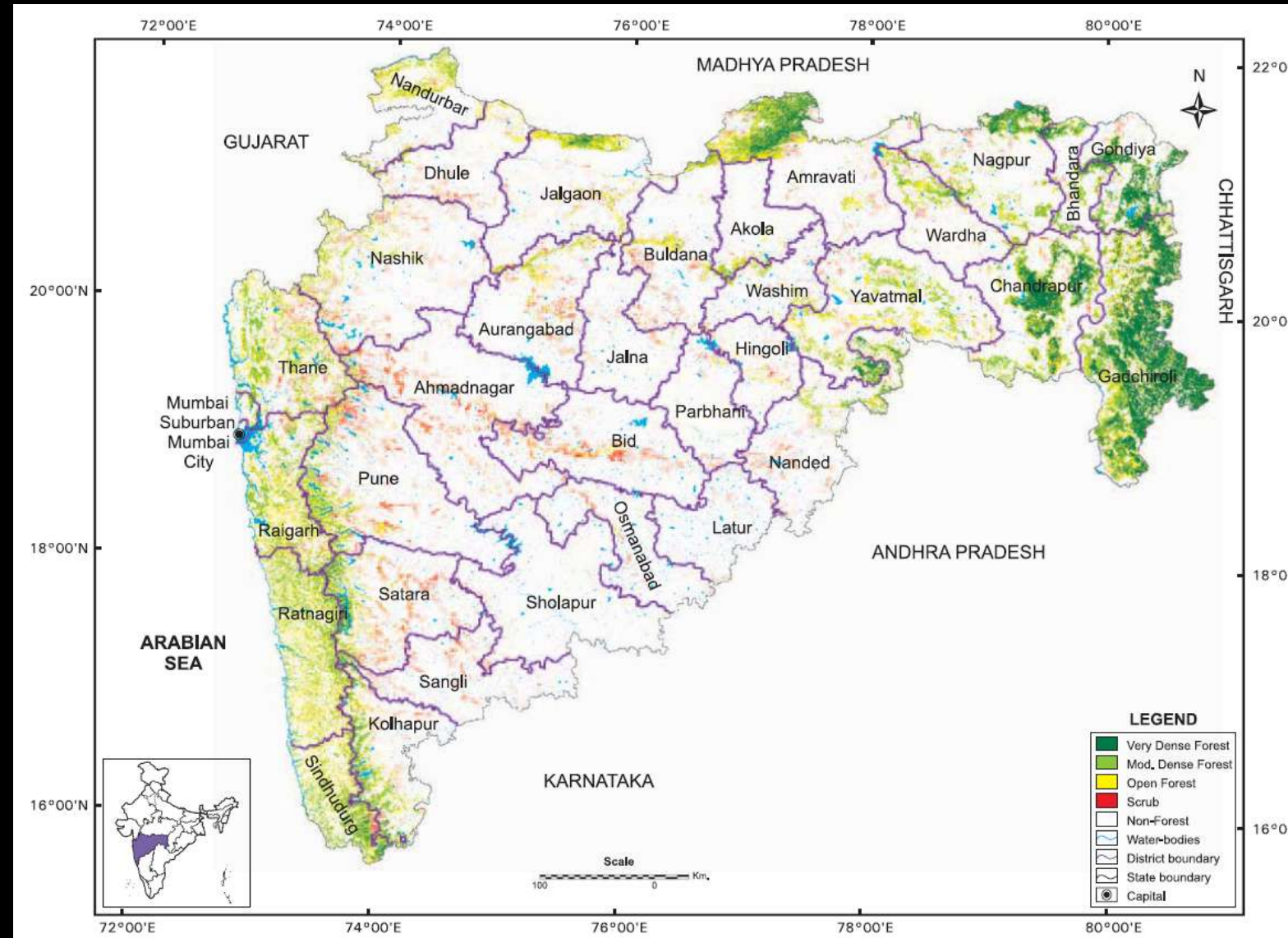




# Forest Cover of Maharashtra State- India



State of Forest Report-2009  
Forest Survey of India  
Govt. of India



# Forest Area Statistics of Maharashtra

<b>To recorded Forest Area of the State</b>	<b>61,939 Sq.Km</b>
<b>Forest Area as state's geographical area</b>	<b>20.12 %</b>
<b>I. Reserved Forests</b>	<b>49,217 Sq.Km</b>
<b>II. Protected Forests</b>	<b>8195 Sq.Km</b>
<b>III. Unclassed Forests</b>	<b>4527 Sq.Km</b>
<b>Forest Area in charge of Forest Department</b>	<b>55, 927 Sq.Km</b>
<b>Forest Area in charge of Revenue Department</b>	<b>2449 Sq.Km</b>

# Protected Area Network in Maharashtra



# Mumbai Metropolitan Region (MMRDA map)

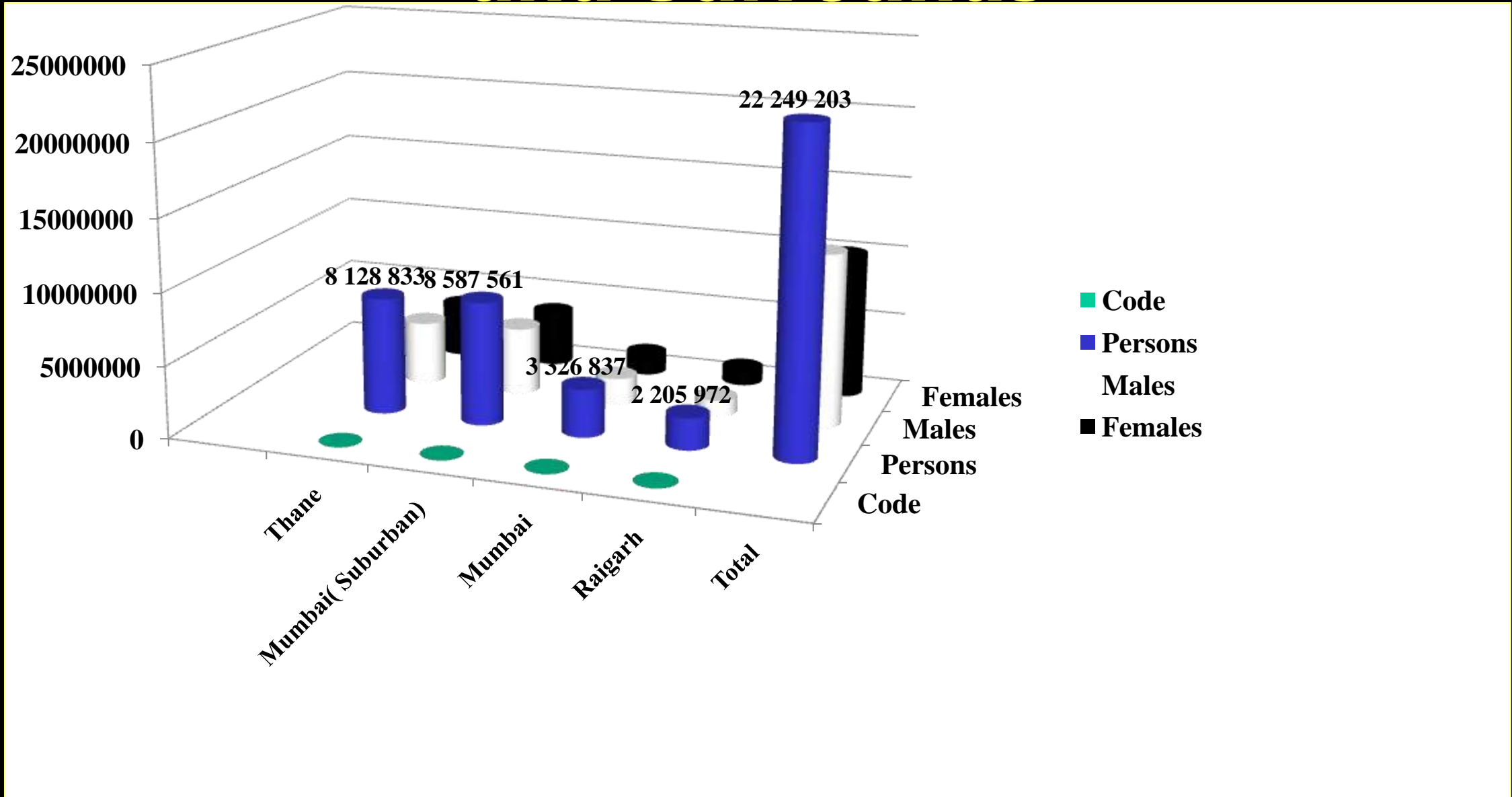
Greater Mumbai Metropolitan area is divided in two revenue districts:

- Mumbai city District (67.79 sq. km) and
- Mumbai suburban District (370 sq km.)

**“Mumbai Metropolitan Region (MMR)”. The region adds 3.887 Km<sup>2</sup> to the Greater Mumbai area of 468 Km<sup>2</sup>,**



# Population Statistics- Mumbai and Surrounds



*Paradise in the City*  
*Sanjay Gandhi National Park*

*Mumbai*

By

Suresh Thorat,

IFS



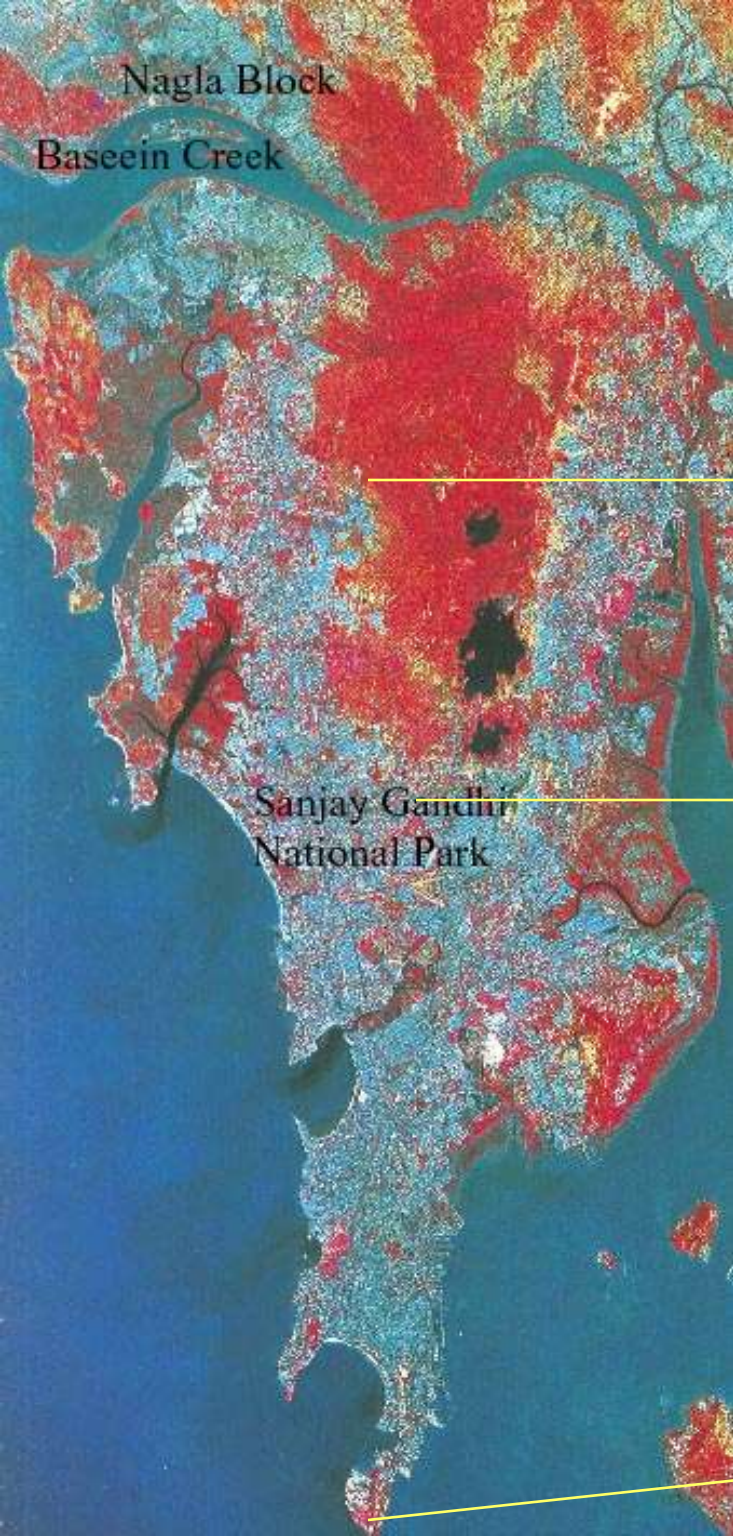
**SANJAY GANDHI NATIONAL PARK**



**SANJAY GANDHI NATIONAL PARK**

Chief Conservator of Forests  
Forest Department of Maharashtra

# Location



Borivali

Air Ports

Colaba

- Situated within city limits of Mumbai and Thane.
- 15 kms. from both Domestic and International Airports and 45 Kms. from southern most end of Mumbai. 1 Km. from Borivali Railway Station.
- $72^{\circ} 53'$  to  $72^{\circ} 58'$  E longitude and  $19^{\circ} 88'$  to  $19^{\circ} 21'$  N latitude.
- Situated in the Western Ghats – a global mega-diversity area.

# The Past and the Present



- 1950 Krishnagiri National Park (20 sq. km.)
- 1960 Handed over to Forest Department
- 1968 Borivali National Park
- 1976 Another 68.9 sq. km. Added
- 1981 Sanjay Gandhi National Park
- 1996 Final Notification under WLPA 1972 for 86 sq. km.



# Sanjay Gandhi National Park



<b>Mumbai Sub Dist</b>	<b>= 44.45 sq. km.</b>
<b>Thane District</b>	<b>= 58.64 sq. km.</b>
<b>Total Area</b>	<b>= 103.09 sq. km.</b>
<b>Notified Area</b>	<b>= 86.00 sq. km.</b>



# Values of SGNP

- Biological
- Hydrological
- Historical
- Recreational
- Educational
- Spiritual

# Forests Types of SGNP

1. Moist Teak Bearing Forests
2. Southern Tropical Dry Deciduous Forests
3. Southern Tropical Hill Forests
4. Mangrove Forests



# Krishna Giri Upavan & Surroundings



# A view of Mangrove Forests from Nagla Creek



# A view from Kanheri Hill



# Captivating Beauty of Tulsi Lake



# Floral Value: About 800 species of Flowering Plants



**Flame of the Forests**



**Lagerstroemia**



**Strobilanthus**



**Indian Laburnum**



# Faunal Value



43 species of Mammals



45 species of Reptiles



150 species of Butterflies



12 species of Amphibians



Thousands of Invertebrates



300 species of Birds

# Some Important Birds of SGNP



Paradise Fly Catcher



Woodpecker



Peacock

# Monkeys of SGNP



Black Faced  
Langur



Rhesus Macaque



Bonnet Macaque

# Deer of SGNP



Sambhar Deer



Spotted Deer



Barking Deer

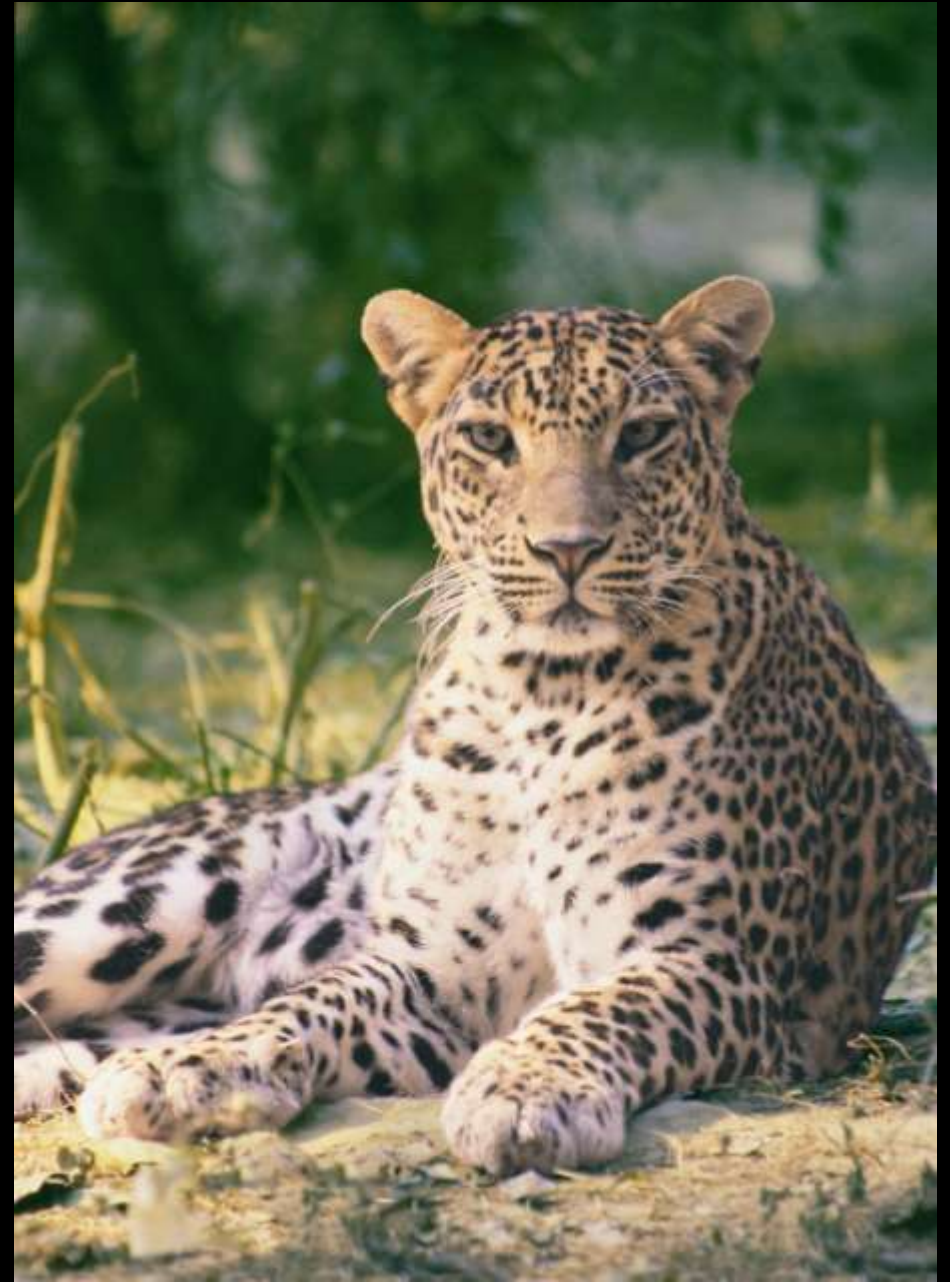


Mouse Deer

# Cats of SGNP



Rusty Spotted Cat



Leopard

# Hydrological values



**Tulsi  
&  
Vihar  
Lakes**

# Recreational Zone of SGNP

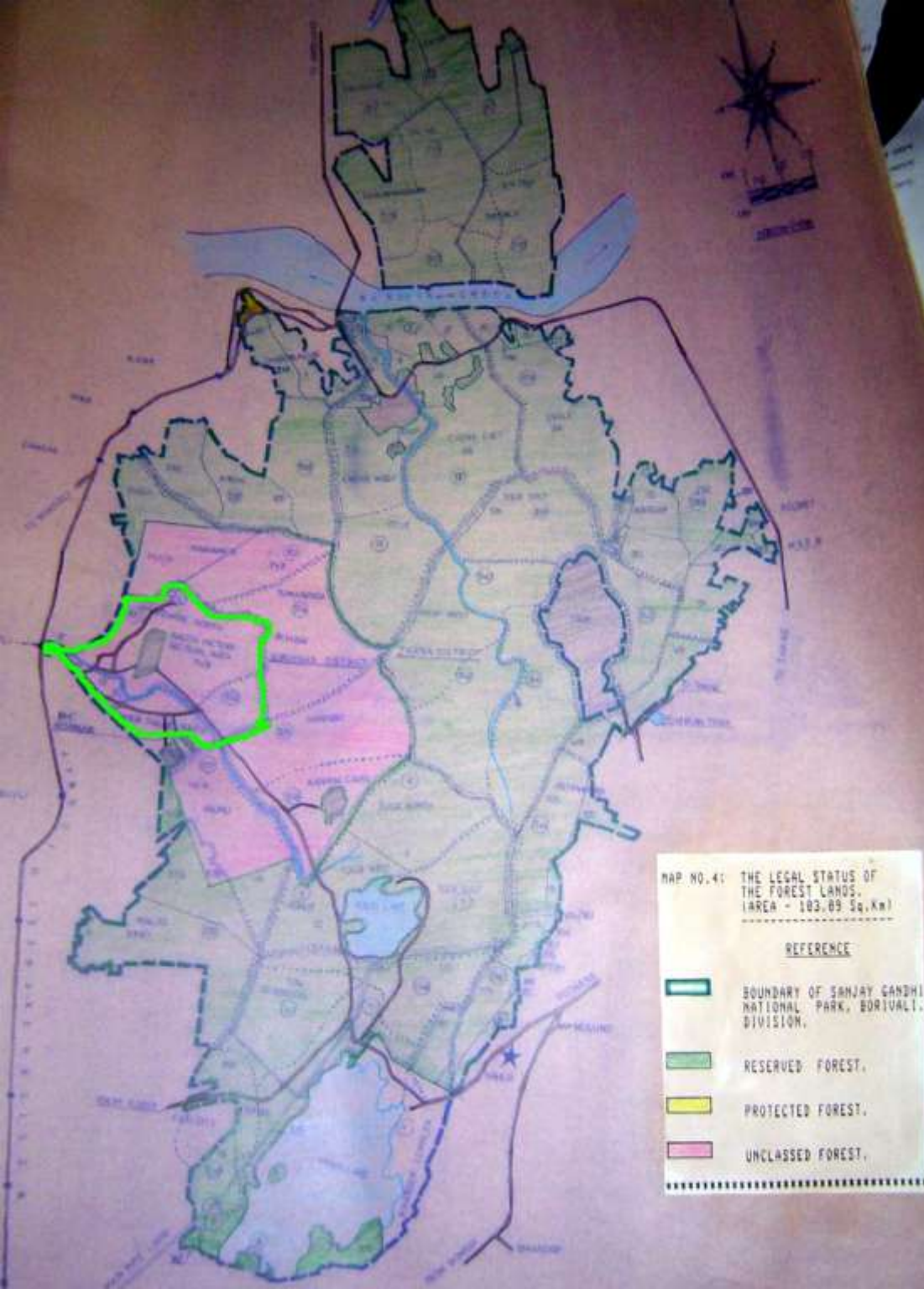
Krishnagiri Upavan = 5 sq. km.

Boating

Gandhi Smarak

Tiger & Lion Safari

Children's Park



# Recreational Zone of SGNP







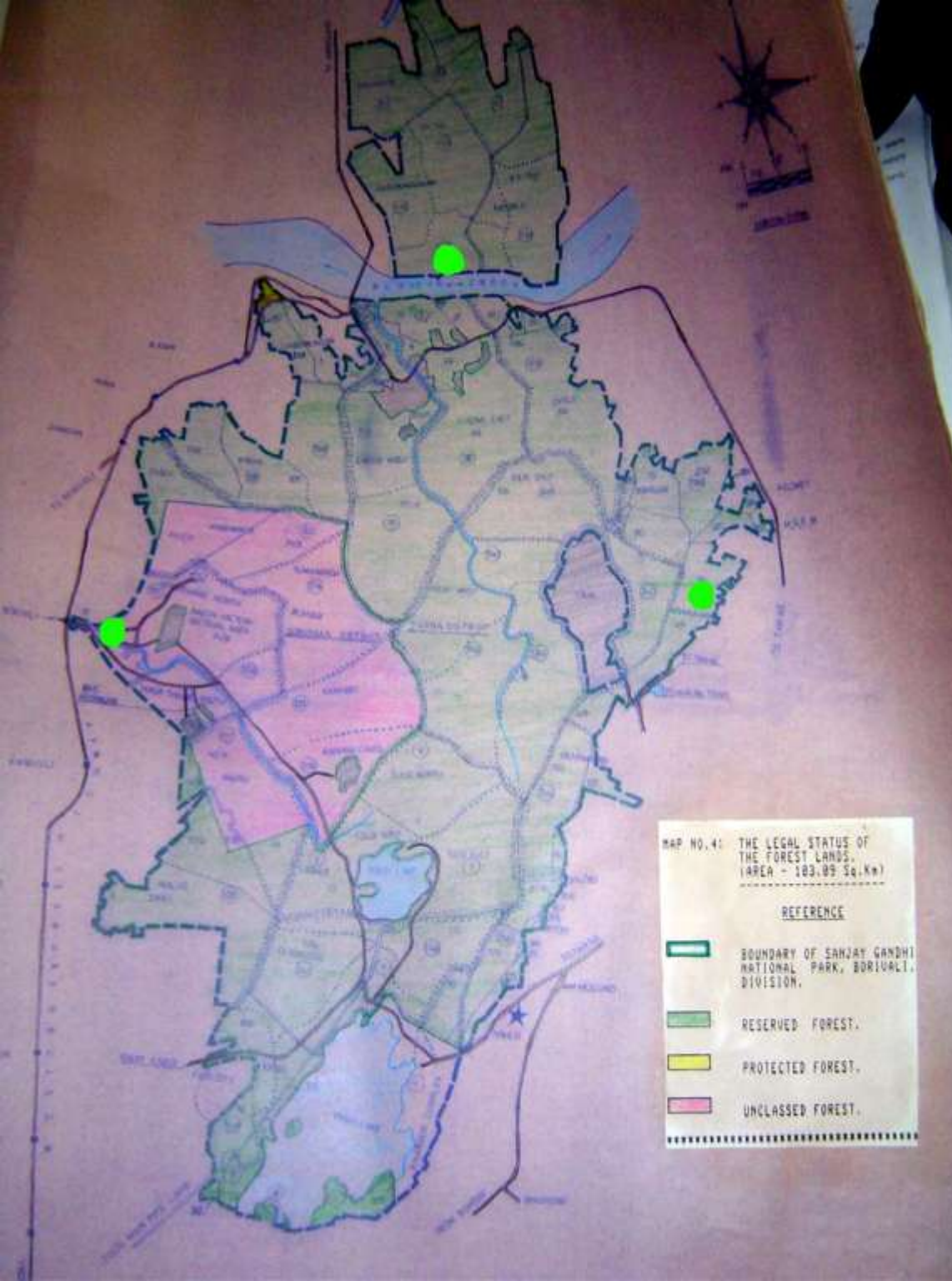






# Education Centres of SGNP

Nature Information Centre, Borivali  
Nature Information Centre, Manpada  
Mangrove Interpretation Centre,  
Korlai



# Educational values



# Trail Beauties



# Dr. Brandis Memorial Butterfly Garden.





# 3 – D Miniature Model of SGNP



# Guided Tour of Exhibition



# Problems of SGNP

# Encroachment

- There were about 61,000 hutments and 3000 commercial structures occupying about 500 acres of land of SGNP.



# Encroachment

- 46,000 hutments and 3000 commercial structures have been removed.
- However, 1,50,000 people are still living in about 30 *Padas* & 15,000 unauthorized hutments.



# Effects of Encroachments — increasing human activity

- Habitat Destruction
- Illegal entries into the notified area



# Effects of Encroachments –Habitat Degradation

- Wide spread garbage



# Effects of Encroachments

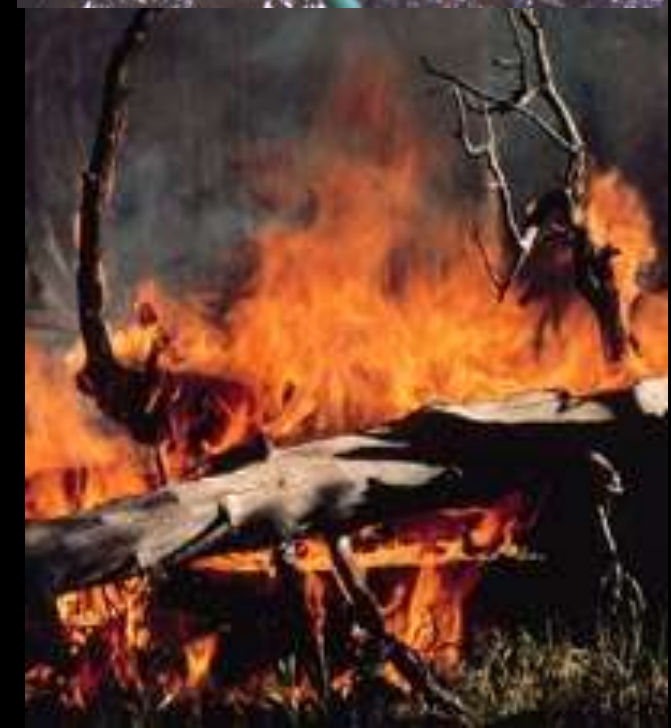


Man – Animal Conflict

Illicit Distilleries



Forest Fire





# Man- Animal Conflict



- Human movement
- Habitat degradation
- Decrease in prey base
- Increase in dog population in and around the encroachments

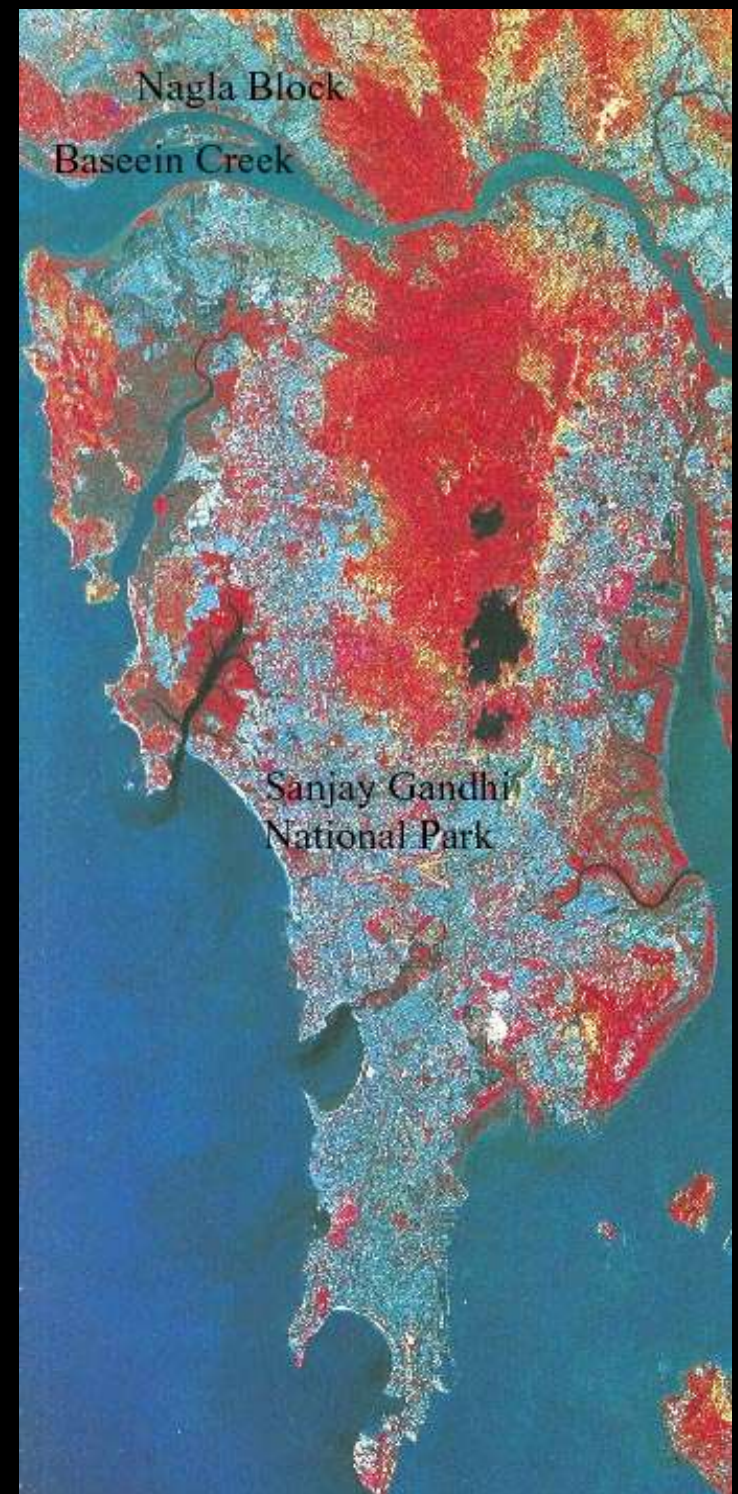
# Unrevealed fact Loss to the Wildlife Itself



# Sudden Change in the status of SGNP



# Geographical Status



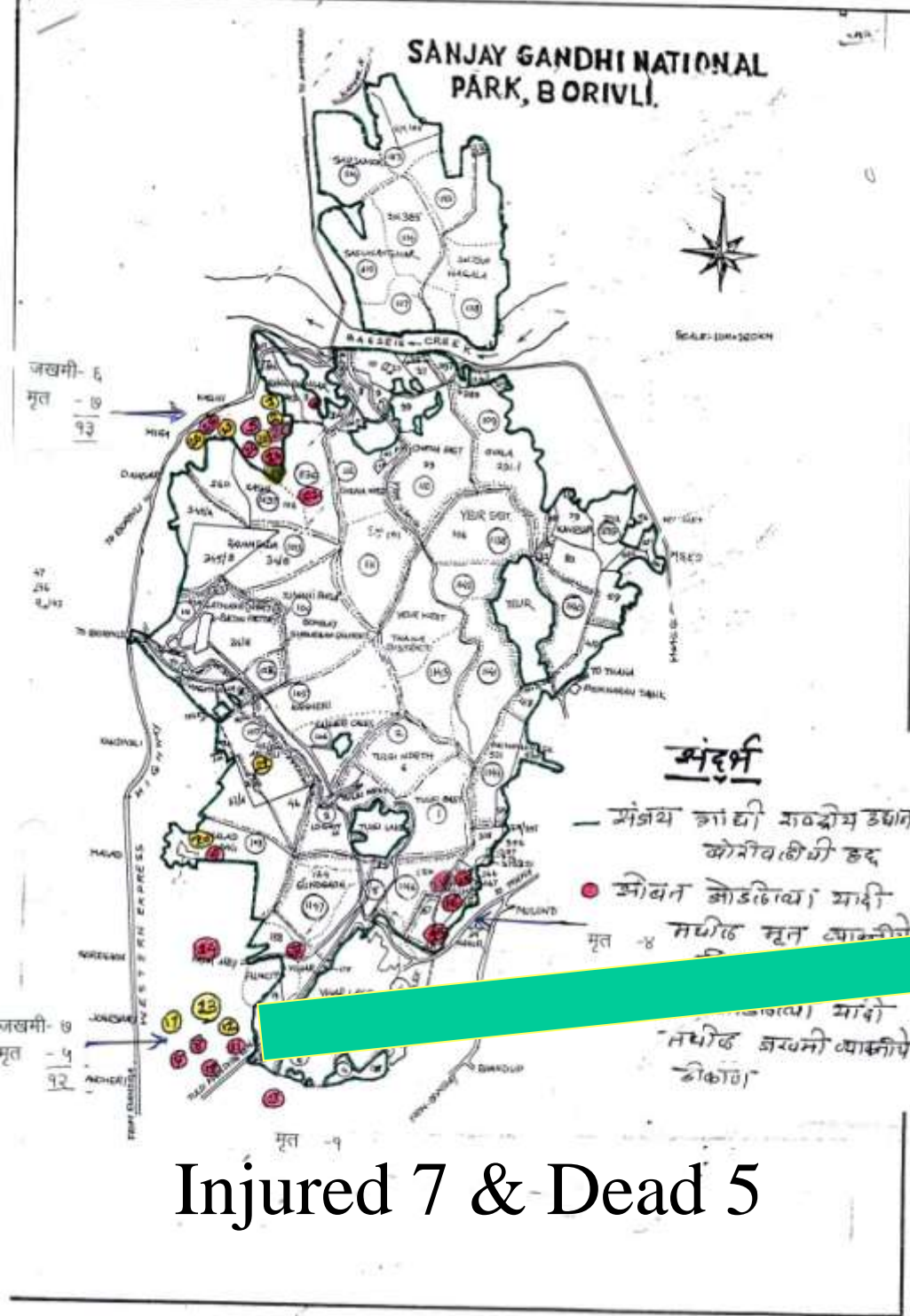
# Annual Census Statistics of Important Mammals of SGNP

<b>Animal</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
Leopard	42	42	38	33
Sambar	29	23	79	23
Chital	126	162	167	273
Barking Deer	08	28	25	11
Monkeys	185	441	589	819
Wild Pigsú	30	28	19	26
Jackal	01	03	01	05
Hare	30	18	27	25
Mongoose	07	18	36	26
Jungle cat	--	12	08	10
Hyena	--	01	01	03

# Statistics of Attacks by Leopard

Year	Within NP		Outside NP		Total		Total
	Dead	Injured	Dead	Injured	Dead	Injured	
1998	07	--	05	--	12	--	12
1999	04	02	--	--	04	02	06
2000	02	--	--	--	02	--	02
2001	--	05	--	--	--	05	05
2002	14	07	03	01	17	08	25
2003	08	06	06	09	14	15	29
2004	08	02	11	09	19	11	30
2005	01			01			02
<b>Total</b>	<b>44</b>	<b>22</b>	<b>25</b>	<b>20</b>	<b>69</b>	<b>42</b>	<b>111</b>

# Leopard Attacks in the year 2004



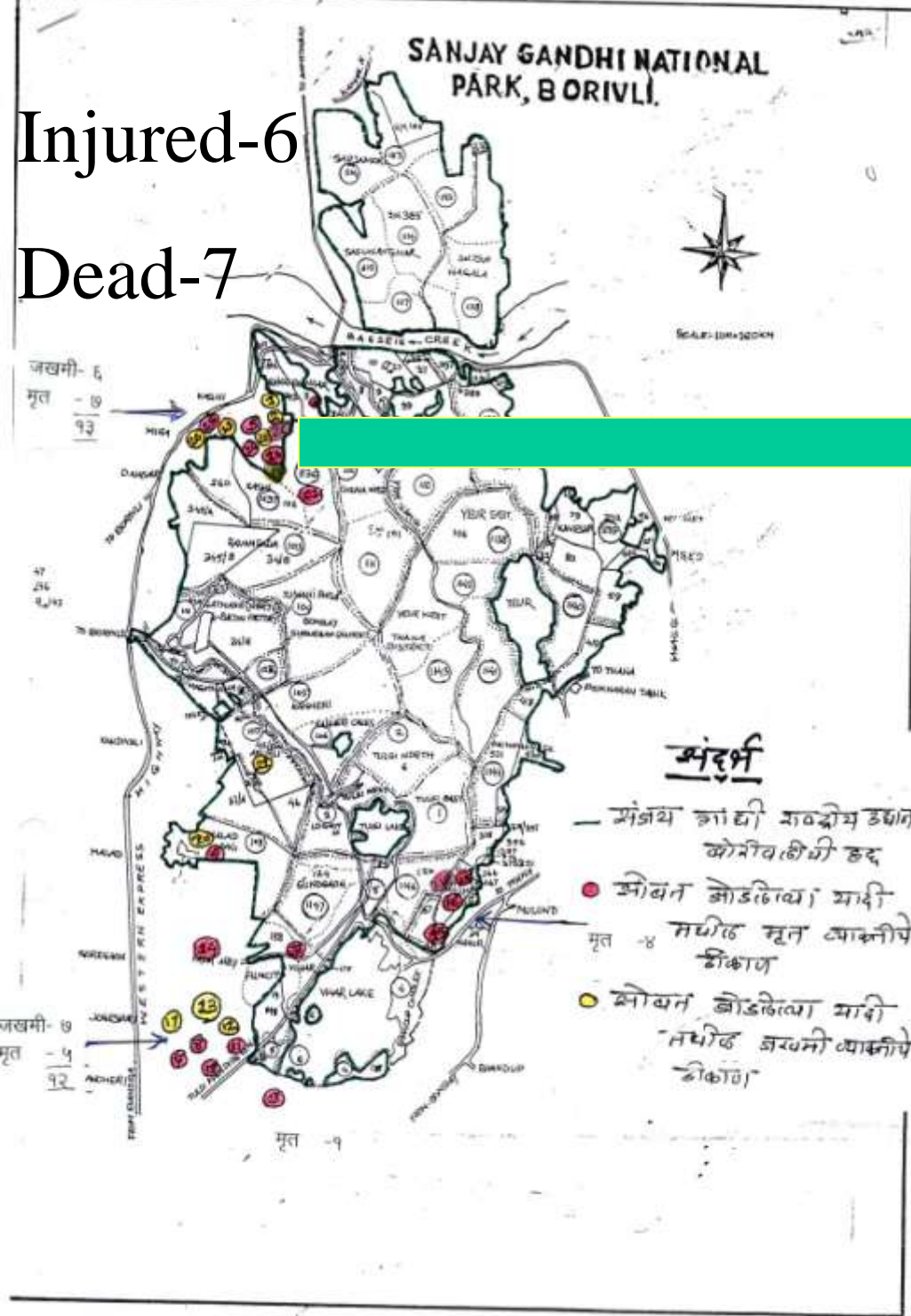
Injured 7 & Dead 5



Aarey Milk Colony situated on SW boundary of SGNP

Injured-6

Dead-7

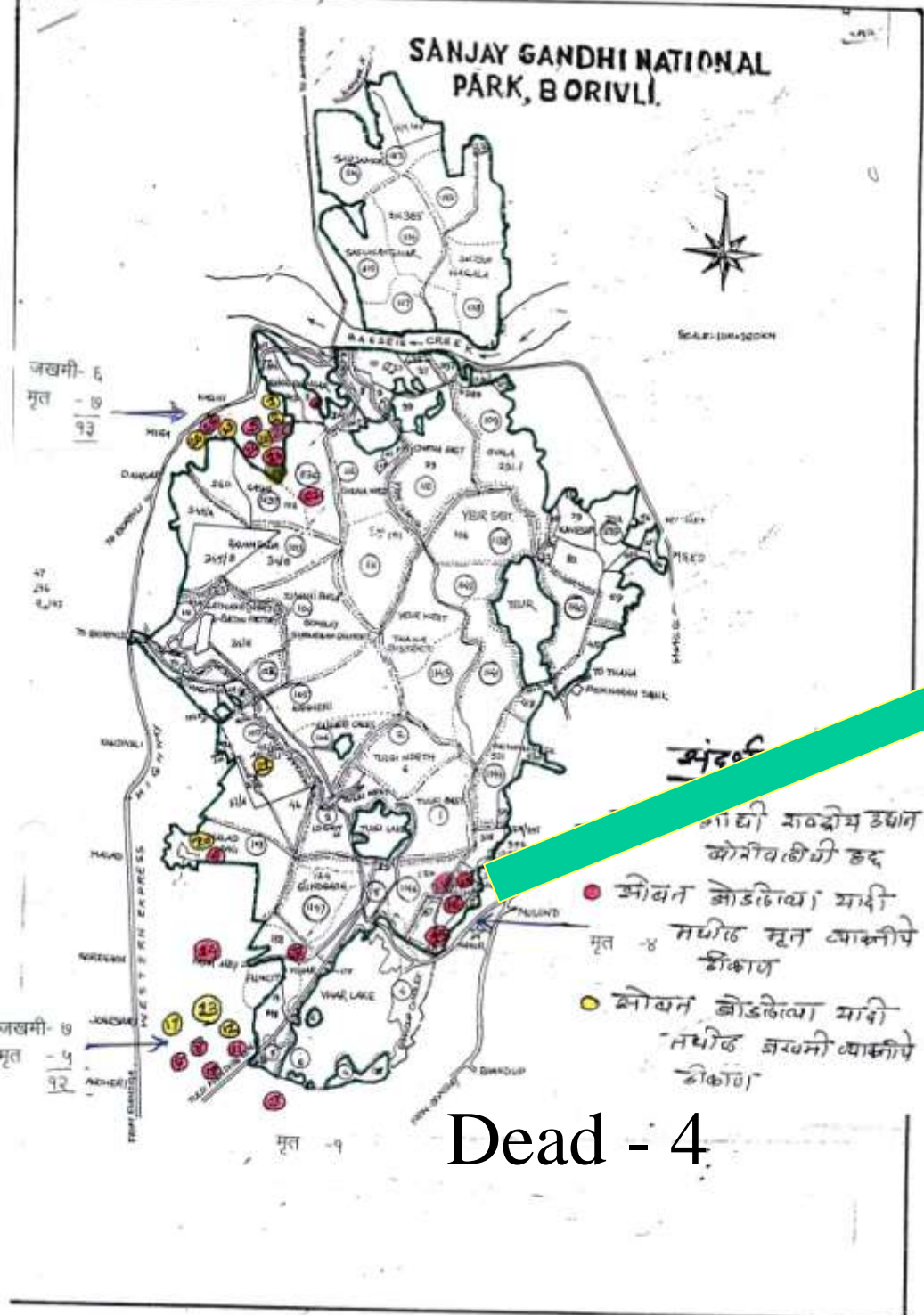


Kashimira Village situated on the NW boundary of SGNP

Leopard attacks in 2004



# Leopard attacks in 2004



Mulund situated on Eastern boundary of SGNP

# Crisis Management by Forest Department

- Setting up Well Equipped Control room at SGNP Main Gate



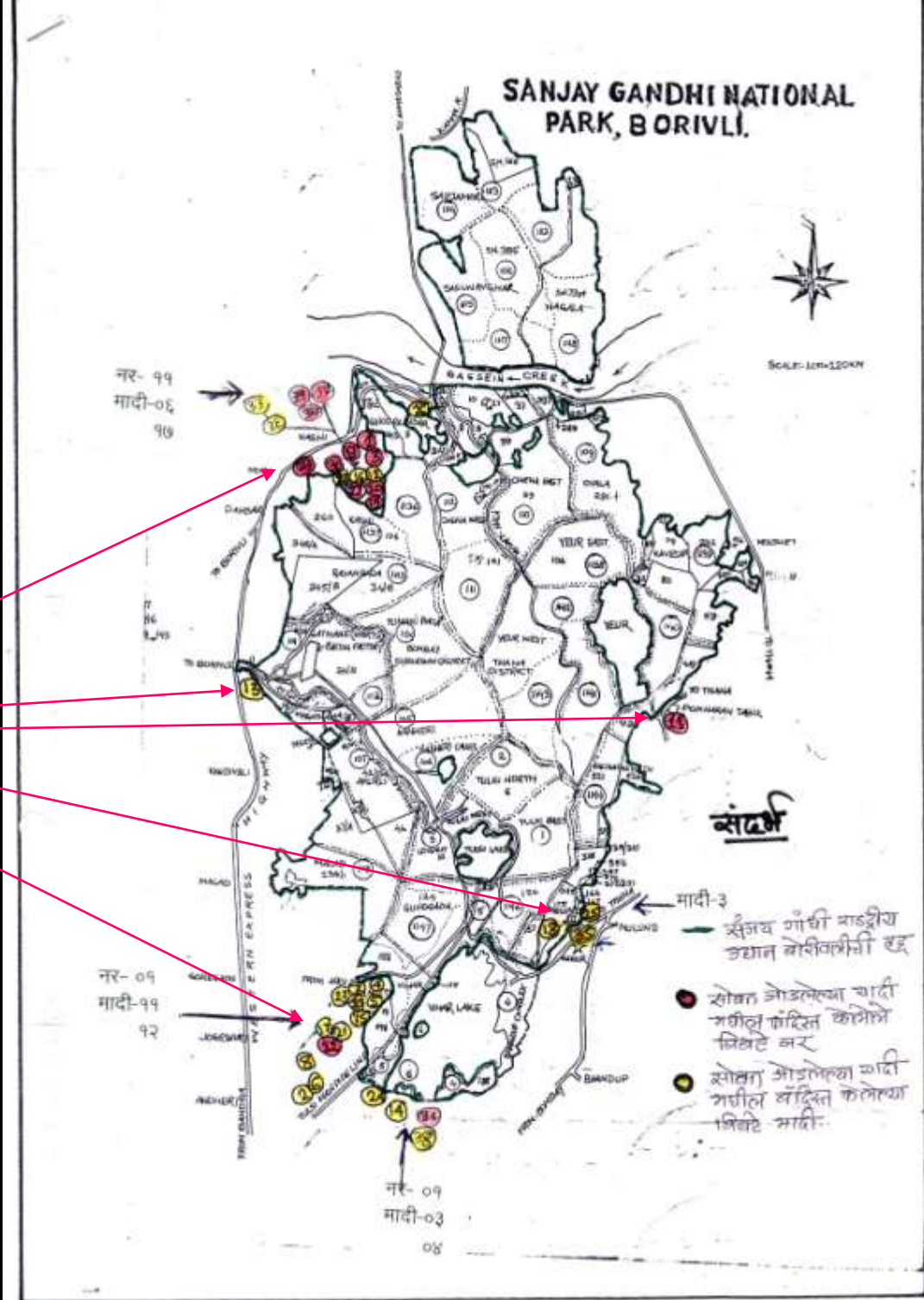
# Crisis Management by Forest Department



# Statistics of Captured Leopards

Year	Trapped within NP	Trapped outside NP	Total
2002	03	05	08
2003	03	15	18
2004	01	36	37
2005	-	01	01
<b>Total</b>	<b>07</b>	<b>57</b>	<b>64</b>

# Locations where Leopards were trapped and Captured



# Crisis Management by Forest Department

- 24 Hours Patrolling by Mobile Squads



# Crisis Management by Forest Department

- Condolence visits to the families of the dead people & financial help by the Forest Department



Financial help given in 13 cases:- Rs.16,62,000

# Crisis Management by Forest Department

- To enhance the Prey Base domestic pigs were released into the SGNP





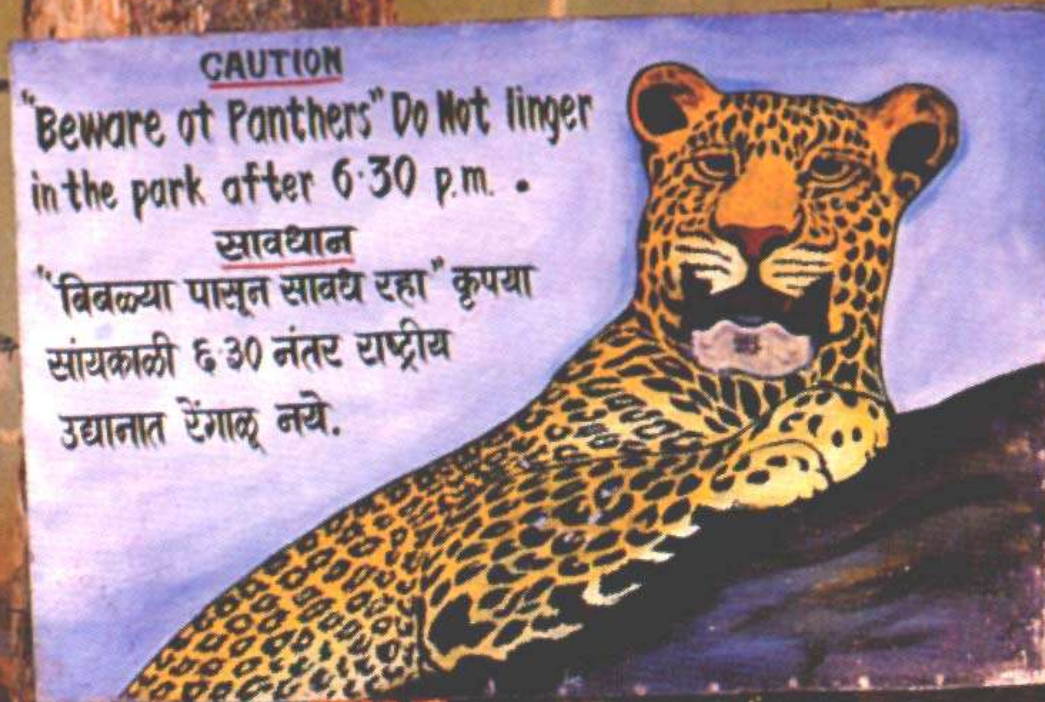
# Awareness campaigns and Outreach Programmes



# Capacity Building



# Sign Boards and Notice Boards



- Do not go for walks in and around the wildlife park alone.
- Do not go for walks very late in the evening or early in the morning.
- Do not throw garbage around the park as this attracts dogs. And dogs, in turn, attract leopards.
- Do not make a noise inside the park. This will drive away the leopard's natural prey which include wild boars, chital, barking deer and ground birds.

**TINKLE** Cares

Issued in the interest of humans and leopards

# Solutions to Man – Animal Conflict

## Eviction of Encroachments Immediately



# Solutions – Construction of RCC Boundary Wall



# Permanent Solutions to Man – Animal Conflict

## Provision for Natural Corridor



# Permanent Solutions to Man – Animal Conflict

- Provision to create buffer zone or No Development Zone around SGNP
- Addition of natural habitat areas such as Aarey Milk Colony to the Notified area of SGNP



# Permanent Solutions to Man – Animal Conflict

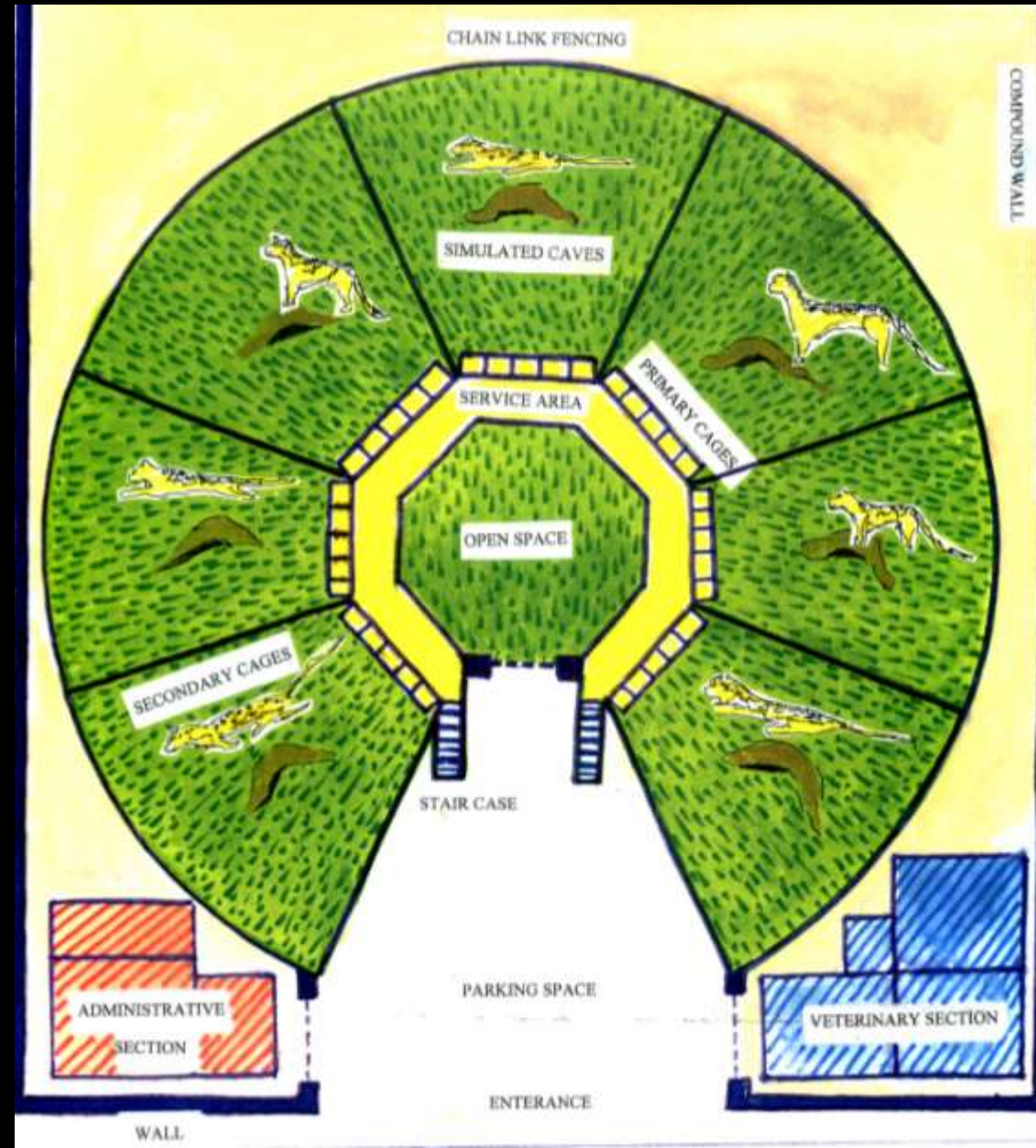
- Transporting prey animals from other wild areas or Zoos or captive breeding centres to SGNP & release them so as to increase the Prey base





# Solutions to Man – Animal Conflict

- Orphanage for captive Leopards
- Modern Veterinary Hospital



# Permanent Solutions to Man – Animal Conflict

## Wildlife Research

- Ecology of Leopard
- Feeding habits of Leopard
- Territory of Leopard
- Home Range of Leopard
- Leopard tracking by Radio Collaring
- Data management with the help of microchips and DNA sampling



# Permanent Solutions to Man – Animal Conflict

- Encouraging Environmental Education and Awareness activities in SGNP
- Encouraging Eco Tourism in SGNP





His home hold the key to our environmental security.

**Thank You**