

Contents

<i>Preface</i>	vii
<i>About the Author</i>	viii
<i>JRF Syllabus for Forestry</i>	ix
<i>NET Syllabus for Agroforestry</i>	xi–xiii
1. General Forestry	1–36
2. Ecology	37–48
3. Forest Management	49–66
4. Wildlife Management	67–74
5. Forest Utilization	75–108
6. Plant and Wood Anatomy	109–112
7. Forest Mensuration	113–136
8. Remote Sensing	137–140
9. Plant Physiology	141–158
10. Rangeland Management	159–164
11. Forest Protection	165–170
12. Silviculture	171–186
13. Agroforestry	187–192
14. Social Forestry	193–194
15. Genetics & Tree Improvement	195–206
16. Tree Seed Technology	207–210
17. Soil Science	211–220
18. Agricultural Extension	221–226
19. Agricultural Statistics and Economics	227–230
20. Key Points of State Forest Reports 2015	231–234
21. Memory based JRF Paper 2015	235–240
22. Memory based JRF Paper 2016	241–248
23. Memory based JRF Paper-2018	249–252

CHAPTER 1

General Forestry

STATE WISE FOREST PROFILE

1. ANDHRA PRADESH	
Total Geographic Area	160,204 Km ²
Recorded forest area	3,965 Km ²
Forest area of TGA	2.48 per cent
Annual Rainfall	1094 mm
Total Protected areas	16
National Parks	3
Wildlife Sanctuaries	13
State animal	Blackbuck
State bird	Indian roller
State tree	Neem
Local tribes	Andh, Bhil, Gond, Konda
2. ARUNACHAL PRADESH	
Total Geographic Area	83,743 Km ²
Recorded forest area	761 Km ²
Forest area of TGA	0.91 per cent
Annual Rainfall	2782 mm
Total Protected areas	13
National Park	2
Wildlife Sanctuary	11
State animal	Mithun
State bird	Great Hornbill
State tree	Hollong
Local tribes	Abor, Galong, Khowa, Bhil

2 ♦ Universal Forestry

3. ASSAM	
Total Geographic Area	78,438 Km ²
Recorded forest area	1,613 Km ²
Forest area of TGA	2.06 per cent
Annual Rainfall	2818 mm
Total Protected areas	23
National Park	5
Wildlife Sanctuary	18
State animal	One horn Rhinoceros
State bird	White-winged wood Duck
State tree	Hollong
Local tribes	Chakma, Garo, Hajong, Kuki
4. BIHAR	
Total Geographic Area	94,163 Km ²
Recorded forest area	2,182 Km ²
Forest area of TGA	2.32 per cent
Annual Rainfall	1250 mm
Total Protected areas	13
National Park	1
Wildlife Sanctuary	12
State animal	Ox
State bird	House sparrow
State tree	Peepal
Local tribes	Asar, Bhumj, Ho, Gond, Kisan
5. CHHATTISGARH	
Total Geographic Area	1,35,191 Km ²
Recorded forest area	3,629 Km ²
Forest area of TGA	2.68 per cent
Annual Rainfall	1292 mm
Total Protected areas	14
National Park	3
Wildlife Sanctuary	11
State animal	Wild Buffalo
State bird	Hill myna

State tree	Sal
Local tribes	Agariya, Andh, Baiga, Pajra
6. GOA	
Total Geographic Area	3,702 Km ²
Recorded forest area	325 Km ²
Forest area of TGA	8.78 per cent
Annual Rainfall	3005 mm
Total Protected areas	7
National Park	1
Wildlife Sanctuary	6
State animal	Gaur
State bird	Ruby Throated yellow Bulbul
State tree	Matti
Local tribes	Dhodia, Dubla, Siddi, Varli
7. GUJARAT	
Total Geographic Area	1,96,022 Km ²
Recorded forest area	7,914 Km ²
Forest area of TGA	4.04 per cent
Annual Rainfall	1107 mm
Total Protected areas	27
National Park	4
Wildlife Sanctuary	23
State animal	Asiatic Lion
State bird	Greater Flammingo
State tree	Mango
Local tribes	Baeda, Dhodia, Gond, Koli, Patelia
8. HARYANA	
Total Geographic Area	44,212 Km ²
Recorded forest area	1,355 Km ²
Forest area of TGA	3.07 per cent
Annual Rainfall	617 mm
Total Protected areas	10
National Park	2
Wildlife Sanctuary	8

4 ♦ Universal Forestry

State animal	Blackbuck
State bird	Black Francolin
State tree	Peepal
Local tribes	
9. HIMANCHAL PRADESH	
Total Geographic Area	55,673 Km ²
Recorded forest area	757 Km ²
Forest area of TGA	1.36 per cent
Annual Rainfall	1251 mm
Total Protected areas	33
National Park	5
Wildlife Sanctuary	28
State animal	Snow Leopard
State bird	Western Tragopan
State tree	Himalayan Cedar
Local tribes	Gaddi, Laholi, Pangwal, Bholia
10. JAMMU & KASHMIR	
Total Geographic Area	2,22,236 Km ²
Recorded forest area	8,354 Km ²
Forest area of TGA	3.76 per cent
Annual Rainfall	1011 mm
Total Protected areas	19
National Park	4
Wildlife Sanctuary	15
State animal	Hangul
State bird	Black necked Crane
State tree	Chinar
Local tribes	Gujjar, Bakarwal
11. JHARKHAND	
Total Geographic Area	79,714 Km ²
Recorded forest area	2,783 Km ²
Forest area of TGA	3.49 per cent
Annual Rainfall	1543 mm
Total Protected areas	12

National Park	1
Wildlife Sanctuary	11
State animal	Elephant
State bird	Koel
State tree	Sal
Local tribes	Asur, Munda, Oraon, Santhal
12. KARNATAKA	
Total Geographic Area	1,91,791 Km ²
Recorded forest area	5,552 Km ²
Forest area of TGA	2.89 per cent
Annual Rainfall	3456 mm
Total Protected areas	32
National Park	5
Wildlife Sanctuary	27
State animal	Indian Elephant
State bird	Indian roller
State tree	Sandal
Local tribes	Adiyan, Toda, Varli
13. KERALA	
Total Geographic Area	38,863 Km ²
Recorded forest area	2,951 Km ²
Forest area of TGA	7.59 per cent
Annual Rainfall	3055 mm
Total Protected areas	23
National Park	6
Wildlife Sanctuary	17
State animal	Elephant
State bird	Great Hornbill
State tree	Coconut
Local tribes	Chenchu, Irula, Sumali, Toda
14. MADHYA PRADESH	
Total Geographic Area	3,08,245 Km ²
Recorded forest area	7,773 Km ²
Forest area of TGA	2.52 per cent

6 ♦ Universal Forestry

Annual Rainfall	1338 mm
Total Protected areas	34
National Park	9
Wildlife Sanctuary	25
State animal	Swamp Deer
State bird	Asian Paradise Flycatcher
State tree	Banyan
Local tribes	Bhil, Todiya, Kol, Bhumia
15. MAHARASHTRA	
Total Geographic Area	3,07,713 Km ²
Recorded forest area	9558 Km ²
Forest area of TGA	3.11 per cent
Annual Rainfall	1034 mm
Total Protected areas	47
National Park	6
Wildlife Sanctuary	41
State animal	Indian Giant Squirrel
State bird	Green Pigeon
State tree	Mango
Local tribes	Andh, Barda, Bihor, Bhil, kamar
16. MANIPUR	
Total Geographic Area	22,327 Km ²
Recorded forest area	243 Km ²
Forest area of TGA	1.09 per cent
Annual Rainfall	1881 mm
Total Protected areas	3
National Park	1
Wildlife Sanctuary	2
State animal	Sangai
State bird	Nongyeen
State tree	Unigthou
Local tribes	Aimol, Chiru, Mao, Thadou
17. MEGHALAYA	
Total Geographic Area	22,429 Km ²

Recorded forest area	710 Km ²
Forest area of TGA	3.17 per cent
Annual Rainfall	2818 mm
Total Protected areas	5
National Park	2
Wildlife Sanctuary	3
State animal	Clouded Leopard
State bird	Hill Myna
State tree	White Teak
Local tribes	Garo, Khasi, Jaintia, Boro
18. MIZORAM	
Total Geographic Area	21,081 Km ²
Recorded forest area	535 Km ²
Forest area of TGA	2.54 per cent
Annual Rainfall	1881 mm
Total Protected areas	10
National Park	2
Wildlife Sanctuary	8
State animal	Serow
State bird	Hume's Bartailed Pheasant
State tree	Nahar
Local tribes	Lushai, Chakma, Kuki
19. NAGALAND	
Total Geographic Area	16,579 Km ²
Recorded forest area	381 Km ²
Forest area of TGA	2.30 per cent
Annual Rainfall	1881 mm
Total Protected areas	4
National Park	1
Wildlife Sanctuary	3
State animal	Mithun
State bird	Tragopan Blythu
State tree	Alder
Local tribes	Nagas, Ao, Chang, Lotha, Mikir

8 ♦ Universal Forestry

20. ODISHA	
Total Geographic Area	1,55,707 Km ²
Recorded forest area	3,986 Km ²
Forest area of TGA	2.56 per cent
Annual Rainfall	1489 mm
Total Protected areas	21
National Park	2
Wildlife Sanctuary	19
State animal	Sambar
State bird	Indian roller
State tree	Aswatha
Local tribes	Khond, Gond, Juang, Baiga, Ho
21. PUNJAB	
Total Geographic Area	50,362 Km ²
Recorded forest area	1,544 Km ²
Forest area of TGA	3.07 per cent
Annual Rainfall	649 mm
Total Protected areas	13
National Park	0
Wildlife Sanctuary	13
State animal	Blackbuck
State bird	Baaz
State tree	Sheesham
Local tribes	Bangali, Bazigar, Garo, Perna
22. RAJASTHAN	
Total Geographic Area	3,42,239 Km ²
Recorded forest area	8,269 Km ²
Forest area of TGA	2.42 per cent
Annual Rainfall	650 mm
Total Protected areas	30
National Park	5
Wildlife Sanctuary	25
State animal	Camel/Chinkara
State bird	Great Indian Bustard

State tree	Khejri
Local tribes	Bhil, Meena, Shariya, Gujjar
23. SIKKIM	
Total Geographic Area	7,096 Km ²
Recorded forest area	35 Km ²
Forest area of TGA	0.50 per cent
Annual Rainfall	2739 mm
Total Protected areas	8
National Park	1
Wildlife Sanctuary	7
State animal	Red Panda
State bird	Blood Pheasant
State tree	Rhodendron
Local tribes	Bhutia, Lepcha, Serpa
24. TAMIL NADU	
Total Geographic Area	1,30,058 Km ²
Recorded forest area	4,505 Km ²
Forest area of TGA	3.46 per cent
Annual Rainfall	998 mm
Total Protected areas	34
National Park	5
Wildlife Sanctuary	29
State animal	Nilgiri Thar
State bird	Emerlad Dove
State tree	Palmyra Palm
Local tribes	Adiyan, Kadar, Toda,
25. TELANGANA	
Total Geographic Area	1,14,865 Km ²
Recorded forest area	2549 Km ²
Forest area of TGA	2.22 per cent
Annual Rainfall	961 mm
Total Protected areas	12
National Park	3
Wildlife Sanctuary	9

10 ♦ Universal Forestry

State animal	Deer
State bird	Indian roller
State tree	Jammi
Local tribes	Andh, Bhil, Chenchu, Gond
26. TRIPURA	
Total Geographic Area	10,486 Km ²
Recorded forest area	233 Km ²
Forest area of TGA	2.22 per cent
Annual Rainfall	1881 mm
Total Protected areas	6
National Park	2
Wildlife Sanctuary	4
State animal	Phayre's Langur
State bird	Green Imperial Pigeon
State tree	Agar
Local tribes	Chakamas, Orang, Santal, Garoo
27. UTTAR PRADESH	
Total Geographic Area	2,40,928 Km ²
Recorded forest area	7,044 Km ²
Forest area of TGA	2.92 per cent
Annual Rainfall	1250 mm
Total Protected areas	25
National Park	1
Wildlife Sanctuary	24
State animal	Swamp Deer
State bird	Saras Crane
State tree	Ashok
Local tribes	Bhotia, Buska, Raji, Tharu
28. UTTARAKHAND	
Total Geographic Area	53,483 Km ²
Recorded forest area	752 Km ²
Forest area of TGA	1.41 per cent
Annual Rainfall	650 mm
Total Protected areas	13

National Park	6
Wildlife Sanctuary	7
State animal	Musk Deer
State bird	Himalayan Monal
State tree	Burans
Local tribes	Bhotia, Buska, Raji, Tharu
29. WEST BENGAL	
Total Geographic Area	88,752 km ²
Recorded forest area	2,088 km ²
Forest area of TGA	2.35 per cent
Annual Rainfall	2500 mm
Total Protected areas	21
National Park	6
Wildlife Sanctuary	15
State animal	Fishing Cat
State bird	White throated kingfisher
State tree	Chatian
Local tribes	Asur, Gond, Garo, Munda

UNION TERRITORIES FOREST PROFILE

1. ANDAMAN AND NICOBAR ISLANDS	
Total Geographic Area	8,249 Km ²
Recorded forest area	37 Km ²
Forest area of TGA	0.44 per cent
Annual Rainfall	2967 mm
Total Protected areas	102
National Park	9
Wildlife Sanctuary	96
State animal	Sea Cow
State bird	Andman Wood Pigeon
State tree	Andman Paduk
Local tribes	Andamanese, Onges, Bo, Tabo

12 ♦ Universal Forestry

2. CHANDIGARH	
Total Geographic Area	114 Km ²
Recorded forest area	9 Km ²
Forest area of TGA	7.80 per cent
Annual Rainfall	617 mm
Total Protected areas	2
National Park	0
Wildlife Sanctuary	2
State animal	Indian Grey Mongoose
State bird	Indian Grey Hornbill
State tree	Mango Tree
Local tribes	Baleniki, Khatik, Nat
3. DADRA AND NAGAR HAWELI	
Total Geographic Area	491 Km ²
Recorded forest area	28 Km ²
Forest area of TGA	5.72 per cent
Annual Rainfall	2000-2500 mm
Total Protected areas	1
National Park	0
Wildlife Sanctuary	1
State animal	–
State bird	–
State tree	–
Local tribes	Dhodia, Kathodi, Konka, Koli
4. DAMAN AND DIU	
Total Geographic Area	112 Km ²
Recorded forest area	10 Km ²
Forest area of TGA	9.18 per cent
Annual Rainfall	1899 mm