



**State Forest Research And Training Institute, Raipur (Chhattisgarh)**

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# **Biodiversity, Ecology & Climate Change Division**

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*Presentation by:*

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## Area of Work under this Division

Biodiversity Assessment

Ecological Study in sensitive areas

Wildlife Management Plan



Already allotted works

Ecological restoration of degraded ecosystems

Environmental Impact Assessment

Impact of Climate Change and mitigation strategies

Plantation interventions in potential areas

Human Wildlife Conflict mitigation strategies



Possible Work Plans

## Mandate formulated for the Division

1. Species inventory, biodiversity assessment (flora and fauna) and population dynamics of natural forests and industrial plantations.
2. Perform detailed ecological analyses to understand habitat dynamics, species interactions, and environmental factors.
3. Develop and implement strategies for sustainable wildlife conservation, habitat improvement, and population monitoring.
4. Develop plans/protocols for eco-restoration of degraded forests and problem sites including mined out overburden dumps, waterlogged sites, marginal and wastelands.

## Mandate formulated for the Division

5. Evaluate the potential environmental consequences of proposed projects, offering mitigation measures to minimize adverse impacts.
6. Conduct studies on climate change mitigation potential of forest tree species in plantations, natural forests and agroforestry systems.
7. Identify suitable locations and species for plantations and value their tangible and intangible benefits.
8. Formulate and implement measures to reduce conflicts between human communities and wildlife.
9. Provide consultancy services to PSUs (NTPC, SECL, CIL, CMPDI) and govt. agencies (SFD, RVVN) for forestry and non-forestry purpose.

# 1. Species inventory, biodiversity assessment (flora and fauna) and population dynamics of natural forests and industrial plantations.

Related Research Works	Prominent Scientist	Possible Research Area for SFRTI
<p>Ecological assessment of flora diversity in MPCA of Chhattisgarh with special emphasis on species of medicinal importance and conservation priority. (2018)</p>	<p><b>Shri. Dheeraj K. Gupta</b>            Scientist -C, Forest Ecology and Climate Change Division (TFRI)            Mobile No: + 91 7587525086            E-mail: <a href="mailto:dkg@icfre.org">dkg@icfre.org</a></p>	<ul style="list-style-type: none"> <li>Conduct comprehensive surveys of flora and fauna species in key ecosystems like PA(s), Forest Circles/Divisions of Chhattisgarh. (Preparation of Biodiversity manuals/books with the help of BSI/ZSI)</li> </ul>
<p>Biodiversity assessment of encroachment removed area of Madan Mahal Hills of Jabalpur and it's surrounding forest area for ecological restoration through plantation and conservation of cleaned area. (2022)</p> <p><a href="https://mpsfri.org/files/Conservation_P2_21_22.pdf">https://mpsfri.org/files/Conservation_P2_21_22.pdf</a></p>	<p><b>Dr. Uday Homkar</b>            Senior Research Officer &amp; Division In-Charge, Conservation Division (SFRI)            Mobile No: + 91 9229844788            Email: <a href="mailto:homkar_uday@rediffmail.com">homkar_uday@rediffmail.com</a></p>	<ul style="list-style-type: none"> <li>Monitoring of population trends for flagship species like tigers, elephants, and leopards in protected areas. (in Collaboration with WII)</li> </ul>
<p>Study on status of ground flora diversity under teak plantations of different ages raised by Madhya Pradesh Rajya Van Vikas Nigam Ltd. MPRVWN, Bhopal at Umaria, Rampur Bhatodi (Betul) and Kundam project (Jabalpur). (2017)</p>	<p><b>Dr. R. K. Pandey</b>            Retd. Scientist -F and Head, Forest Ecology &amp; Environment Branch (SFRI)            Mobile No: + 91 9993400918            Email: <a href="mailto:pandeyrk1@yahoo.com">pandeyrk1@yahoo.com</a></p>	<ul style="list-style-type: none"> <li>Survey and documentation of freshwater biodiversity in rivers like Mahanadi, Shivnath, and their tributaries.</li> <li>Assisting in the development of conservation action plans for threatened species and habitats.</li> </ul>

## 2. Perform detailed ecological analyses to understand habitat dynamics, species interactions, and environmental factors.

Related Research Works	Prominent Scientist	Possible Research Area for SFRTI
<p>Protection, maintenance and successional study in terms of growth, biomass and carbon sequestration in preservation plots laid in different forest types of Madhya Pradesh. (2019)</p> <p><a href="https://mpsfri.org/files/CC_Summary_P1.pdf">https://mpsfri.org/files/CC_Summary_P1.pdf</a></p>	<p><b>Dr. Sachin Dixit</b> Senior Research Officer &amp; Cell In-Charge, Climate Change, Climate Justice &amp; REDD+ Cell (SFRI) Mobile No: + 91 7612665540 Email: <a href="mailto:sachindixit70@rediffmail.com">sachindixit70@rediffmail.com</a></p>	<ul style="list-style-type: none"> <li>• Study of ecosystem services provided by forest ecosystems, such as carbon sequestration, water regulation, etc.</li> <li>• Predict potential habitat changes for key species under different climate scenarios and anthropogenic influences.</li> <li>• Identify invasive species and their ecological impact in sensitive areas like degrading forests, etc. along with control measures.</li> <li>• Assessment of Carbon Sequestration Potential of various ecological zones of Chhattisgarh.</li> </ul>
<p>Monitoring of change in Flora &amp; Fauna in the RF due to realignment of Thellavagu at Venkatesh Khani No.7 incline in Ramavaram RF for SCCL, Kothagudam. (2020)</p> <p><a href="https://ifb.icfre.gov.in/external_completed/extcmp10.pdf">https://ifb.icfre.gov.in/external_completed/extcmp10.pdf</a></p>	<p><b>Dr. A. Ponnambalam</b> Scientist -C, Microbial Biodiversity and Forest Protection Division, Institute of Forest Biodiversity (ICFRE) Mobile No: + 91 9848436773 Email: <a href="mailto:ponnambalama@icfre.org">ponnambalama@icfre.org</a></p>	
<p>Ecological Assessment of Forest Areas Falling under Kol Dam Hydroelectric Project in Bilaspur District of Himachal Pradesh. (2023)</p> <p><a href="https://hfri.icfre.gov.in/index.php?linkid=sublnk24st6&amp;link=1">https://hfri.icfre.gov.in/index.php?linkid=sublnk24st6&amp;link=1</a></p>	<p><b>Dr. R. K. Verma</b> Scientist -F, Division Head, Division of Forest Ecology and Climate Change (HFRI) Mobile No: + 91 9418189326 Email: <a href="mailto:vermaraj@icfre.org">vermaraj@icfre.org</a></p>	

### 3. Develop and implement strategies for sustainable wildlife conservation, habitat improvement, and population monitoring.

Related Research Works	Prominent Scientist	Possible Research Area for SFRTI
<p>Preparation of Wildlife Conservation Plan for Endangered Species found in and around Dhelwadih UG, Bagdeva UG and Singhali UG mines of DSB Sub Area, SECL Korba Area (Chhattisgarh) for SECL, CIL. (2019)</p>	<p><b>Dr. Avinash Jain</b>            Head &amp; Scientist -F, Forest Ecology and Climate Change Division (TFRI)            Mobile No: + 91 9424617880            E-mail: <a href="mailto:jaina@icfre.org">jaina@icfre.org</a></p>	<ul style="list-style-type: none"> <li>• Preparation of Zonal Wildlife Management Plan for the focused wildlife in core and buffer zones of degraded areas.</li> <li>• Impact assessment of proposed mining activities and other threats on existing population of wildlife.</li> <li>• Study and Development of critical habitats for wildlife and prey species within and adjacent to the diverted forest land.</li> <li>• <b>Training of forest staffs to monitor the presence of wildlife and ensure their protection from illegal activities. (in Collaboration with WII)</b></li> </ul>
<p>Monitoring and evaluation of wildlife and their habitats for sustainable management and development in the protected areas/Territorial divisions of Madhya Pradesh. (2022)  <a href="https://mpsfri.org/files/AED_2021_22.pdf">https://mpsfri.org/files/AED_2021_22.pdf</a></p>	<p><b>Dr. Mayank M. Verma</b>            Senior Research Assistant &amp; Division In-Charge, Wildlife Management Division (SFRI)            Mobile No: + 91 9981657100            Email: <a href="mailto:mayanksfri@gmail.com">mayanksfri@gmail.com</a></p>	
<p>Preparation of Detailed Project Report for wildlife habitat improvement in the adjoining area of Sardar Sarovar Project, Madhya Pradesh. (Revised DPR) (2023)  <a href="https://mpsfri.org/files/WL_SardarSarovar2019-20.pdf">https://mpsfri.org/files/WL_SardarSarovar2019-20.pdf</a></p>	<p><b>Dr. Anjana Rajput</b>            Senior Research Officer &amp; Division In-Charge, Habitat Ecology Division (SFRI)            Mobile No: + 91 8989756015            Email: <a href="mailto:dranjana.rajput@gmail.com">dranjana.rajput@gmail.com</a></p>	

#### 4. Develop plans/protocols for eco-restoration of degraded forests and problem sites including mined out overburden dumps, waterlogged sites, marginal and wastelands.

Related Research Works	Prominent Scientist	Possible Research Area for SFRTI
Development of management protocols for restoring degraded forests in Vazhachal – Parambikulam CFR area using native plant species and NTFPs. (2022)	<b>Dr. K A Sreejith</b> Principal Scientist, Department of Forest Ecology (KFRI) Mobile No: 7907082434 e-mail: <a href="mailto:sreejith@kfri.res.in">sreejith@kfri.res.in</a>	<ul style="list-style-type: none"> <li>Assessment of eco restoration techniques for soil improvement and re-vegetation of coal and mineral mines affected landscapes.</li> <li>Identify and restore degraded forest patches, grasslands, and wetlands to improve biodiversity and wildlife habitats.</li> <li>Restore degraded urban parks and wastelands to enhance biodiversity and ecosystem services.</li> <li>Workshop on Principles and Possibilities of Eco restoration in Chhattisgarh. (in Collaboration with GGU)</li> </ul>
Preparation of DPR for Restoration of Degraded Land in the Aravali zone (Funded by MoEF&CC, Govt. of India). (2022)	<b>Dr. Sachin Sharma</b> Scientist –C, Arid Forest Research Institute, Jodhpur (ICFRE) Email: <a href="mailto:ssharma@icfre.org">ssharma@icfre.org</a>	
Eco-restoration on mined out areas and waste dumps at Meghahatuburu iron ore mines, SAIL, in Saranda Forest Division, West Singhbhum, Districts of Jharkhand. (2021)	<b>Shri Sanjiv Kumar,</b> Scientist -E & Head, Institute of Forest Productivity, Ranchi (ICFRE) Mobile No: 0651-2526144 Email: <a href="mailto:dir_ifp@icfre.org">dir_ifp@icfre.org</a>	
Reclamation of coal mined land of North Eastern Coalfields, Assam through soil amendment and revegetation with native plant species using integrated biological approach. (2023)	<b>Dr. Dhruba Jyoti Das</b> Scientist -F, Rain Forest Research Institute, Jorhat (ICFRE) Mobile No: 91-0376-2305101 Email: <a href="mailto:dasdj@icfre.org">dasdj@icfre.org</a>	



5. Evaluate the potential environmental consequences of proposed projects, offering mitigation measures to minimize adverse impacts.

Related Research Works	Prominent Scientist	Possible Research Area for SFRTI
<p>Environmental Impact Assessment on Flora, Fauna &amp; Socio economic status of local communities and action to be taken to mitigate impact of Kopra Medium Project at Nauradehi Wildlife Sanctuary, Sagar District (M.P). (2023)</p> <p><a href="https://mpsfri.org/files/EIA1_2023-24.pdf">https://mpsfri.org/files/EIA1_2023-24.pdf</a></p>	<p><b>Dr. Jyoti Singh</b> Senior Research Officer and Cell In-charge, Environmental Impact Assessment Cell (SFRI) Mobile No: + 91 9424305561 Email: <a href="mailto:singhjyoti.sfri@gmail.com">singhjyoti.sfri@gmail.com</a></p>	<ul style="list-style-type: none"> <li>• Studying the environmental impact of habitat destruction, pollution, etc. due to mining activities on wildlife health.</li> <li>• Monitoring the biodiversity to study Environmental Impact Assessments (EIAs) of developmental projects.</li> <li>• Change detection analysis in Land Use and Land Cover of degraded landscapes due to various developmental projects like mining, hydro projects, etc.</li> </ul>
<p>Baseline data generation work of flora fauna studies for preparation of EIA/EMP report for the three open cast coal mining projects of M/s Northern Coalfields Limited Singrauli M.P. (Ongoing)</p>	<p><b>Dr Aniruddha Majumder</b> Scientist - B and Division In-Charge, Animal Ecology Division (SFRI) Mobile No: + 91 8377936934 Email: <a href="mailto:aniruddha_majumder@yahoo.com">aniruddha_majumder@yahoo.com</a></p>	
<p>Quantitative assessment of land degradation in forests of Madhya Pradesh and suggest mitigation measures. (2021)</p>	<p><b>Shri. Dheeraj K. Gupta</b> Scientist -C, Forest Ecology and Climate Change Division (TFRI) Mobile No: + 91 7587525086 E-mail: <a href="mailto:dkg@icfre.org">dkg@icfre.org</a></p>	

## 6. Conduct studies on climate change mitigation potential of forest tree species in plantations, natural forests and agroforestry systems.

Related Research Works	Prominent Scientist	Possible Research Area for SFRTI
<p>Innovative technologies for climate change mitigation and biodiversity conservation with alternate livelihood opportunities for mountain communities in North Western Himachal Himalayas. (2020)</p>	<p><b>Dr. Vaneet Jishtu</b>            Scientist -E, Forest Ecology and Climate Change Division (HFRI)            Mobile No: + 91 94182-32954            E-mail: <a href="mailto:jishtuv@icfre.org">jishtuv@icfre.org</a></p>	<ul style="list-style-type: none"> <li>• Study the performance of protected areas in changing climatic conditions and their contribution to climate change mitigation.</li> <li>• Assessing the role of changing climatic conditions on biodiversity of Chhattisgarh.</li> </ul>
<p>Monitoring the impact of climate variables on plant diversity in Bhimashankar permanent preservation plot of Sub tropical hill forest of Maharashtra. (2014)</p>	<p><b>Dr. P. K. Khatri</b>            Retd. Scientist –C, Biodiversity and Sustainable Forest Management Division (TFRI)</p>	<ul style="list-style-type: none"> <li>• Development of adaptive restoration techniques for areas prone to climate change (droughts or floods affected landscapes).</li> <li>• Monitoring the impact of climate change on species distribution and ecosystem health.</li> </ul>
<p>AICRP 31: Study of climate driven effects on Indian forests through long term monitoring. (2018)</p>	<p><b>Dr. Avinash Jain</b>            Head &amp; Scientist -F, Forest Ecology and Climate Change Division (TFRI)            Mobile No: + 91 9424617880            E-mail: <a href="mailto:jaina@icfre.org">jaina@icfre.org</a></p>	<ul style="list-style-type: none"> <li>• <b>Workshop on Impacts of Climate Change in Chhattisgarh and Modern Measures of Mitigation. (in Collaboration with State Forest Department/GGU)</b></li> </ul>

## 7. Identify suitable locations and species for plantations and value their tangible and intangible benefits.

Related Research Works	Prominent Scientist	Possible Research Area for SFRTI
AICRP 24: Combating desertification by enhancing vegetation cover and people livelihoods in degraded drylands and deserts of India. (2018)	<b>Shri. M. RajKumar</b> Scientist -C, Forest Ecology and Climate Change Division (TFRI) Mobile No: + 91 9424625519 E-mail: <a href="mailto:rajcumarm@icfre.org">rajcumarm@icfre.org</a>	<ul style="list-style-type: none"> <li>Development of strategies for afforestation on degraded lands, wastelands, and abandoned mines in Chhattisgarh.</li> <li>Design climate-smart plantation models (eg., Miyawaki method, seed ball dispersal in difficult-to-access terrains) to mitigate the effects of changing climatic conditions.</li> <li>Planning for plantations of species that provide habitat and food resources for wildlife in buffer zones of protected areas.</li> </ul>
Selection of suitable species on the basis of growth performance of established plantations and development of nursery techniques to increase green cover under Green India Mission (GIM) in western Madhya Pradesh. (2020)	<b>Dr. Pratiksha Chaturvedi</b> Senior Research Officer and Division In-Charge, Forest Management Division (SFRI) Mobile No: + 91 9826145284 Email: <a href="mailto:chaturvedi.pratiksha@yahoo.com">chaturvedi.pratiksha@yahoo.com</a>	
Monitoring of NTPC Accelerated Afforestation Programme of plantation in M.P. and Maharashtra. (2022)	<b>Dr. Avinash Jain</b> Head & Scientist -F, Forest Ecology and Climate Change Division (TFRI) Mobile No: + 91 9424617880 E-mail: <a href="mailto:jaina@icfre.org">jaina@icfre.org</a>	

## 8. Formulate and implement measures to reduce conflicts between human communities and wildlife.

Related Research Works	Prominent Scientist	Possible Research Area for SFRTI
Study project on wild elephant habitat use and mitigation measures to minimize man-conflict : with reference to Sanjay-Bandhavgarh habitat linkage of central highlands landscape. (Ongoing)	<b>Dr. Mayank M. Verma</b> Senior Research Assistant & Division In-Charge, Wildlife Management Division (SFRI) Mobile No: + 91 9981657100 Email: <a href="mailto:mayanksfri@gmail.com">mayanksfri@gmail.com</a>	<ul style="list-style-type: none"> <li>• Studying the impact of human activities on biodiversity, especially in areas near forests and protected zones.</li> <li>• Research on mitigation strategies (habitat development, food and water availability in their natural habitats, etc.) for human-wildlife conflicts, focusing on elephants and leopards.</li> <li>• <b>Training of forest staffs to monitor and mitigate the human-wildlife conflicts and ensure sustainable management of both sectors. (in Collaboration with WII)</b></li> </ul>
Study on agricultural crop damage by wild animals and its management in Hoshangabad Circle of Madhya Pradesh. (2020) <a href="https://mpsfri.org/files/HED_Crop19-20.pdf">https://mpsfri.org/files/HED_Crop19-20.pdf</a>	<b>Dr. Anjana Rajput</b> Senior Research Officer & Division In-Charge, Habitat Ecology Division (SFRI) Mobile No: + 91 8989756015 Email: <a href="mailto:dranjana.rajput@gmail.com">dranjana.rajput@gmail.com</a>	
Developing long term monitoring tools and strategies for mitigating human-wildlife conflicts in Kerala (Phase I). (2022) <a href="https://www.kfri.res.in/research_program.asp?ID=355">https://www.kfri.res.in/research_program.asp?ID=355</a>	<b>Dr. P. Balakrishnan</b> Scientist, Department of Wildlife Biology (KFRI) Mobile No: + 91 8281730109 e-mail: <a href="mailto:baluperoth@kfri.res.in">baluperoth@kfri.res.in</a>	
Study on leopard ( <i>Panthera pardus</i> L.) presence, identification of conflict zones and developing suitable mitigation measures on human-leopard interactions in the urban areas of Jabalpur and Indore, Madhya Pradesh. (2023) <a href="https://mpsfri.org/files/AED1_2023-24.pdf">https://mpsfri.org/files/AED1_2023-24.pdf</a>	<b>Dr. Aniruddha Majumder</b> Scientist - B and Division In-Charge, Animal Ecology Division (SFRI) Mobile No: + 91 8377936934 Email: <a href="mailto:aniruddha_majumder@yahoo.com">aniruddha_majumder@yahoo.com</a>	

9. Provide consultancy services to PSUs (NTPC, SECL, CIL, CMPDI) and govt. agencies (SFD, RVVN) for forestry and non-forestry purpose

Related Research Works	Prominent Scientist	Possible Consultancy Services for SFRTI
Wildlife Conservation Plan for Dipka Expansion Project. (2018)	<b>Dr. Avinash Jain</b> Head & Scientist -F, Forest Ecology and Climate Change Division (TFRI) Mobile No: + 91 9424617880 E-mail: <a href="mailto:jaina@icfre.org">jaina@icfre.org</a>	<ul style="list-style-type: none"> <li>• Provide consultancy to PSUs such as NTPC, SECL, CIL, CMPDI during forest land division for non-forestry purpose.</li> <li>• Preparation of Wildlife Conservation Plan.</li> <li>• Preparation of inventory of flora and fauna in Chhattisgarh state.</li> <li>• Monitoring and Evaluation of Afforestation Programme Under CAMPA.</li> <li>• Preparation of Peoples' Biodiversity Register for BMCs of Chhattisgarh state.</li> <li>• Studies on Environment Impact Assessment (EIA) and Preparation of Environment Management Plan (EMP)</li> </ul>
Monitoring of NTPC Accelerated Afforestation Programme of plantation in M.P. and Maharashtra. (2022)		
Inventorization of existing floral and faunal elements in the proposed Biodiversity park Area at Bargi Hills, Jabalpur. (2018)	<b>Dr. Uday Homkar</b> Senior Research Officer & Division In-Charge, Conservation Division (SFRI) Mobile No: + 91 9229844788 Email: <a href="mailto:homkar_uday@rediffmail.com">homkar_uday@rediffmail.com</a>	
Preparation of Peoples' Biodiversity Register for 32 BMCs of Andhra Pradesh state. (Ongoing)	<b>Shri D.Jayaprasad, IFS,</b> Ex-Director, Institute of Forest Biodiversity (ICFRE) Mobile No: 66309501 e-mail: <a href="mailto:director_ifb@icfre.org">director_ifb@icfre.org</a>	
Monitoring and Evaluation of Plantations and other works under Andhra Pradesh CAMPA. (2020)		
NTPC Accelerated Afforestation Programme of 10 million trees – in seven different states. (NA)		

*Thankyou*

