

**Proceedings of Brainstorming Session on
“Conservation of Ecorace Raily in Bastar Subdivision of Chhattisgarh”
held on 3rd December 2021 at Regional Sericulture Research Station, Jagdalpur**

A brainstorming session was organized on 03.12.2021 by Regional Sericulture Research Station (RSRS), Jagdalpur under the chairmanship of Dr. K. Sathyanarayana, Director, Central Tasar Research & Training Institute (CTR&TI), Ranchi. The meeting was attended by the scientists of CTR&TI Ranchi, scientists of BTSSO Bilaspur, the zonal officers from the state sericulture department, the retired scientists who have contributed for the ecorace Raily and the field functionaries. The list of participants is enclosed in **Annexure ‘A’**.

At the outset, Shri. Sunil Kumar Misro, Scientist-D & In-charge, RSRS, Jagdalpur welcomed Dr. K. Sathyanarayana, Chairman, Dr. Rajesh Baghel, Additional Director, DoS, Chhattisgarh, Assistant Directors of DoS, retired CSB scientists involved in Raily conservation and scientists’ team from CTR&TI, Ranchi and Basic Tasar Silkworm Seed Organization (BTSSO), Bilaspur.

In the inaugural address, the Chairman, Dr. K. Sathyanarayana, emphasized the importance of wild ecoraces which are contributing over 60% of tasar silk production in Chhattisgarh for providing the livelihood for tribal populace of the area and to different sectors of the society. He expressed his concern over declining trend of Raily ecorace population in Bastar in the recent years and sought the views of officers and field functionaries of DoS about the past and present status of Raily population and protocol adopted for Raily conservation, over the period.

Dr. Rajesh Baghel, Additional Director DOS Chhattisgarh has highlighted about the efforts taken by Directorate of Rural Industries (Sericulture Sector) in Raily conservation, establishment of camps in eco-pockets in and around Bastar division viz. Nangur, Darbha, Tokapal, Tongpal, Dantewada, Kanker, Kondagaon, Narayanpur, Bijapur and Geedam. He informed that the deforestation in Bastar and rampant collection of Raily cocoons by tribal people in the forest area are the important causes of declining Raily population over the period.

Deputy Director and Assistant Directors of Sericulture has presented the production details and expressed their views over declining of the Raily cocoons as follows,

Table 1. Zone wise Raily cocoon production details (in Lakhs) under Bastar subdivision

Name of the District	Year					
	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Bastar	142	292	425	243	175	-
Narayanpur	48	100	33.6	41.9	34.8	-
Dantewada	34.54	250	20.59	187.06	135	45
Kondagaon	-	-	0.81	0.81	0.88	-
Sukuma	53.64	300	113.25	503	150	40
Total	278.18	942	593.25	975.77	495.68	85

Shri Jayapal Bariha, Deputy Director of sericulture, Bastar

- The main cause for the declining of Raily population may be due to erratic emergence, raise in temperature and deforestation.

Shri. Inder Kumar Bagri, Assistant Director of sericulture, Narayanpur

- Climate change & global warming are the reasons for the declining trend.
- More than 35% of erratic emergence of Raily moths has been observed during the month of May-June in the conservation camp.
- Uncontrolled collection of Raily cocoons by tribal people from the forest.

Shri. Daya Shankar Sahu, Assistant Director of sericulture, Dantewada

- Reduction of budget allotted by state government for Raily ecorace conservation due to corona pandemic crisis.
- Two methods followed in the Raily conservation process taken up by them as release of eggs in Sal leaf cups and release of moths.
- Pest and disease incidence has not been observed except red ants in the forest causing loss to the young age worms and loss due to predators viz. monkey, squirrel, crow, bats, owls etc., due to shrinking of forest coverage in Bastar.

Shri. K.K Dash, Assistant Director of sericulture, Kanker

- The cocoon availability is less in the area due to acute deforestation and over collection of cocoons.
- Surplus cocoons from Jagadalpur area are being used for the conservation process.

Shri. Ram Surat Beck, Assistant Director of sericulture, Bijapur

- Decreased food plant population and non-availability of *Shorea robusta* in the forest range for the conservation of Raily ecorace is also a factor for declining of the population.

Sri. Sunil Kumar Misro, presented, "Status of Raily Ecorace Conservation in Bastar, Chhattisgarh". He presented the five conservation methods viz. 1. Release of seed cocoons 2. Release of moths 3. Release of gravid moths 4, Release of eggs in sal leaf cups and 5. Release of worms in the place of conservation. Conservation methods (3 & 4) are considered as best methods and should be used for the conservation of Raily ecorace. He also emphasized about the importance of Chaiti crop and reduction of Raily population after discontinuing Chaiti crop. Further he presented the awareness activities taken up in the adjacent villages to educate the people for controlled collection. He presented the following current problems in Raily ecorace conservation.

- Reduction of *S. robusta* due to deforestation and industrialization resulting in decrease of Raily habitat.
- Overexploitation of Raily ecorace by the collection of cocoons and intruding into their econiche.
- Lack of community awareness on Raily conservation among the people.
- Transferring of unaccountable cocoons to weaving clusters in other parts of Chhattisgarh and Jharkhand through weekly markets.
- Damaging of cocoons by the predators viz. monkey, squirrel, crow, bats, etc.

- Mortality in the young larval stage is more because of red ants infestation.

Dr. K. Sathyanaryana, Chairman, has requested the retired CSB scientists to give their views and suggestions regarding the improvement of Raily ecorace population in Bastar and accordingly scientists given their view as follows.

Dr. G. S. Yadav

- Since 35% of population is seen as an erratic emergence, pagoda devises can be used for its control.
- Steps have to be taken for including tropical tasar silkworm under Wildlife Protection Act 1972 to conserve it as per the practices going on for other endangered species by GOI through Protected Areas like National Parks, Sanctuaries, Conservation Reserves and Community Reserves. etc.
- Release of eggs in sal leaf cups has to be followed instead of transferring the gravid moths in Tokana (moth transferring basket) to the deep forest by giving stress.

Dr. K. V. S. Rao

- Conservation methods have to be followed for the conservation of insects similar to wild animals.
- Conservation programme has to be taken for both Chaiti and Bhado crops of Raily. There should be specific releasing period and periodic reevaluation of conservation methods to develop a sustainable model as climate change is a dynamic process which changes constantly with period of time.
- Among 42 forest ranges available in Bastar, 21 forest ranges are found to be suitable for Raily conservation. Hence, extensive survey has to be taken in those 21 forest ranges at eastern plateau of Bastar division starting from north to south.
- Stifling of unemerged cocoons has to be avoided due to its univoltine behaviour.

Dr. S. K. Patnaik

- Improve the conservation by increasing the number of camps with limited number of Raily cocoons, instead of more cocoons in a single camp i.e., one camp with 1,00,000 cocoons can be replaced by five camps @ 20,000 cocoons in the same forest range.

Later, scientists came from CTR&TI, Ranchi and BTSSO, Bilaspur expressed the following views.

Dr. I. G. Prabhu

- New eco-pockets without any human interference have to be explored with the help of GIS technology.
- Camps have to be established in the core zone of Bastar with the help of District/Divisional Forest Officer (DFO) to overcome the stress on moths while releasing inside the forest.
- Complete case study has to be performed with past 15 years data over various parameters influenced the Raily population.

Dr. H. S. Gadad

- Number of camps has to be increased with Pagoda where there is less human interference.

Dr. Thirupam Reddy

- Complete surveillance on disease, pests and predators inside the forest over Raily population has to be performed to know the impact of biotic stress on the biotic potentiality of ecorace.

Dr. J. Binkadakatti

- Awareness programmes and community education have to be organized for the tribal people to understand the importance of conservation of Raily population inside the forest to check complete collection of cocoons.

Dr. H. Nadaf

- Include other organizations involved in wild life conservation in the Raily conservation programme.

Dr. Vishaka

- Among 19 suitable ecopockets of Raily ecorace, only seven ecopockets have been utilized for conservation. Hence, further conservation programme may be conducted in the remaining ecopockets.

Mr. Rehman

- A pyramid shape pagoda device has to be developed for the preservation of Raily cocoons in the conservation zone.

After detailed deliberations, in his concluding remarks Dr. Rajesh Baghel, Additional Director, DOS Chhattisgarh stated that –

- Multiplication of the ecorace of a certain ecopocket should not be transferred to other ecopockets
- The 21 ecopockets need to be explored by taking further studies
- The scientific tools to be analyzed and refined from the available crude methods
- Plant population is to be supplemented with the food plants wherever deforestation is noticed
- Human interaction during the conservation process is to be restricted to the minimum
- As after stopping the conservation programme of Chaiti crop from 2012, the population of Raily ecorace has started to decrease, he advised to initiate the same in the coming years.


Dr. K. Sathyanaryana, Chairman in his concluding remarks suggested the following recommendations to boost the conservation process:

- During conservation camps, since 35% of population would emerge erratically, to avoid population loss, the said erratically emerged moths in the pagoda devises/ nylon nets should be utilized for the release in core areas.

- To reduce the size of each camp from 1 lakh to about 25000 and increase the number of locations of release for better proliferation.
- Camps to be established minimum 5-10 kms inside the forest to overcome the human interference and stress (as at present camps are being conducted almost in the road side) while carrying the gravid moths to release inside the forest.
- New ecopockets without any human interference to be identified for further establishment of camps.
- New camps with Pagoda to be established in the core zone of Bastar with the help of forest department.
- Community education, motivation and activity programme for the tribal people should be taken up by involving CRPs, VSSs, TVSSs, VFCs, other NGOs, etc., for conservation and avoid over collection beyond threshold level of 70%.
- Market intelligence survey to be taken up with details of source of arrival of cocoons and also to understand quantum of cocoons exploited/ marketed for reeling in other reeling/ weaving pockets.
- Extensive survey to be conducted in all the 21 forest ranges of Bastar, suitable for Raily ecorace to analyze the availability of Raily population and also to take up complete surveillance on disease, pests and predators in the Raily population in the conservation pockets.
- Studies on size of Tokana (bamboo basket) to be standardized to reduce the stress during the release of gravid moths inside the forest.
- Leaf cups with eggs have to be plugged over the trees at the height of at least 15 to 20 feet above ground level to overcome the attack by predators and efficient feeding of leaves.
- Tribal co-operative marketing development federation of India Limited (TRIFED) to be involved in the marketing of Raily cocoons.
- Pyramid system of Pagoda device to be adopted for the preservation of cocoons in the camp to provide proper space and protection from predators.
- RSRS Jagdalpur to associate with the Raily ecorace conservation on a regular basis and to take up pilot studies in the above areas.
- To appraise the DOS, Chhattisgarh on the recommendations of the Brainstorming Workshop for further follow-up and support from Govt. of Chhattisgarh.

The meeting ended with a vote of thanks by Sri. Sunil Kumar Misro, Scientist-D & In-charge, RSRS, Jagdalpur.

Place: Ranchi
Date : 10.12.2021


(Dr. K. Sathyanarayana)
Director

Annexure A

**“Conservation of Raily Ecorace in Bastar”
held on 3rd December 2021 at Regional Sericulture Research Station, Jagdalpur
LIST OF PARTICIPANTS**

Sl. No.	Participants	Designation
1.	Dr. K. Sathyanarayana	Director, CTR&TI, Ranchi
2.	Dr. Rajesh Baghel	Additional Director, DoS, Chhattisgarh.
3.	Shri. Sunil Kumar Misro	Scientist-D & In-charge, RSRS, Jagdalpur
4.	Shri. Inder Kumar Bagri	Assistant Director, Narayanpur
5.	Shri. Daya Shankar Sahu	Assistant Director, Dantewada
6.	Shri. K.K Dash	Assistant Director, Kanker
7.	Shri. Sudarshan Vishwakarma	Cocoon Bank, Bastar.
8.	Dr. G. S. Yadav	CSB Scientist (Retd)
9.	Dr. K. V. S. Rao	CSB Scientist (Retd)
10.	Dr. S. K. Patnaik	CSB Scientist (Retd)
11.	Dr. H. Nadaf	Scientist-C, BTSSO, Bilaspur
12.	Dr. J. Binkadakatti	Scientist-C, CTR&TI, Ranchi
13.	Dr. I. G. Prabhu	Scientist-C, CTR&TI, Ranchi
14.	Dr. H. S. Gadad	Scientist-B, CTR&TI, Ranchi
15.	Dr. B. Thirupam Reddy	Scientist-B, BSM&TC, Kharsawan
16.	Dr. G.V. Vishaka Reddy	Scientist-B, BTSSO, Bilaspur