The Rufford Small Grants Foundation

Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Kunal Patel
Project title	Ecology of rusty spotted cat in Kevadi reserved forest of Western India with emphasis given to population status and radio telemetry phase (I).
RSG reference	9125-2
Reporting period	12 Months (Further extended to Six more months)
Amount of grant	£6000
Your email address	aranyapro@yahoo.co.in
Date of this report	28th June 2012

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Density estimation using intensive camera trapping				Population estimation had been exercised since this cat was sighted for the first time in October 2004 in and around Kevadi reserved forests. Initially population estimation was derived through encountered rate. This exercise was done between October 2004 and February 2007. The results showed eight different individuals, deriving 0.33 cats/km. (Patel & Jackson 2005-Cat News No.42, Patel 2006-Cat News No.45 and Patel 2011-Cat News No.54-IUCN Cat Specialist Group, IUCN) Systematic population density estimation was started from August 2009 with 1st RSG and is still on with 2nd RSG and will be continued until 2015. Only four photos were obtained through camera trapping during 1st RSG. Last photo of rusty spotted cat was obtained in March 2010, since then no further new photo has been obtained. Even the sighting has becoming extremely rare compared to previous years. Period between April 2010 and 20th June 2012, only one individual rusty spotted cat was sighted on November 15th 2011. In the 1st RSG we thought that our intensive study area was larger for camera trapping efforts, hence in the 2nd RSG we reduced our intensive study area by 80% to intensify our efforts. We covered all possible micro and major habitat types. Our camera trapping efforts were 3465 trap nights spreading 315 days of field work of 17 months during February 2011 to June 2012. We also increased our intensive study area by further 40% for the period of three months of extreme hot and dry period between April 2012 and June 18th 2012. In addition we also carried out night transect study on all available road networks, covering 60 km² in and around Kevadi reserved forests. At the end of 4,172 km of total efforts, we could derived the encountered rate for Jungle cat as 0.7 cats/Km. (n=55). But no rusty spotted cat!!

				Unfortunately our all desperate attempts were failed. Results are null and now it is fear that something is extremely wrong with the rusty spotted cat's individuals in and around Kevadi reserved forests. We achieved almost all available major and important mammalian species distributed in and around Kevadi reserved forests, except for the rusty spotted cat, through camera trapping and night transect study.
Initialising first phase of Radio telemetry- determine home range and to study behaviour ecology				We aimed to capture eight individual rusty spotted cats through cage trapping and to collar them throughout our study period until 2015. But unfortunately at the end of 3150 night trapping efforts during February 2011 to June 2012, not a single rusty spotted cat could be captured. During this process we were succeeded to capture small Indian mongoose *Herpestes javanicus,* small Indian civet *Viverricula indica*, kitten of *Felis silvestris ornata,* puppy of stray dog and Jungle cat, *Felis chaus*. These successes have at least given some sort of relief that our traps and trapping efforts were adequate and practically sound. In initial practice of trapping we encountered some unwanted species captured and our traps were found either stolen or damaged. My earlier observations on rusty spotted cat suggested its strict nocturnal behaviour. Keeping this view in consideration as well as to protect our installed traps, we used to set traps between 1800 to 0700. At the same time we were also keen to avoid spreading wrong message, among the locals that wildlife can be trapped and sell or kill through cage trapping since the study area is not the protected area and surrounded by many villages. We also started campaigning and making locals aware about our trapping exercise and warned that unauthorised trapping and killing wildlife is a punishable act. We utilised all available lure including dried fish, live rodent (rat-mouse), fresh chicken flesh, fresh mammal flesh (goat) and aquatic live creatures. When dried fish and aquatic live creatures were utilised as lure, Common palm civet *Paradoxurus hermaphrodites* was the most interested species. No cat species

				was recorded near to cages. But when live rodent and fresh chicken flesh were utilised as lure, jungle cat was observed almost irresistible. Jungle cats were captured for 12 times during the entire period. Fresh goat flesh showed not many results except Hyeana *Hyeana hyeana* visited the traps for almost all the time and in two incidents, attempted to steal the lure from the cage. My previous observations have revealed that small rodents were the major diet of the rusty spotted cat. We hence utilised live rodents as lure but unfortunately all our desperate attempts to capture this cat went in vain. Is there any possibility that the entire population of rusty spotted cat in and around Kevadi forests is being disappearing?- not a single rusty was observed in the photograph entering or hesitating to enter the cage or its sized footmarks were observed around traps!!
				Why and how---now most critical words must be answered by capturing at least one individual..
Involvement of local communities in range of ecological field techniques and conservation of rusty spotted cat and its habitats.				We were unable to trap a single rusty spotted cat individual and so could not collar a single one hence involvement of locals in range of ecological field techniques in terms of radio telemetry, was totally out of the way. Nevertheless we were fully succeeded local communities to involve in camera trapping and cage trapping exercises. After our constant efforts to reach out to locals and to make them understand about the functions of camera trapping and its importance in wildlife conservation, not a single camera unit was dislocated, touched or disturbed. It was 100% success compared to first RSG. We encourage locals to take their own self portraits before passing through the installed camera traps. In fact after this efforts, many locals suggested us to place traps to such places where we could hardly reached. After showing and watching the photos of wildlife species, locals were observed very positive and willing to protect and conserve wildlife, neighbouring with them. Not a single incident was noticed of forest fire, at least in the 30 km² area of Kevadi forest, generally happens while collecting the flowers

				and seeds of *Madhuca indica* during March to May- end by locals due to their careless act. Initially we lost our cage either stolen or damaged. But thereafter campaigning to aware locals about our trapping exercise, such incidents never repeated. Infect locals started coming with the suggestions of cats' trails near to their agricultural fields or to their settlements. It helped us to improve our trapping efforts. They have at least now realised that cats like rusty spotted cat and jungle cat are most important to them, in order to control population of rodents, the main enemy of their grain.

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

Various research projects have been conducted since 1998 by me around the Kevadi reserved forests. These projects have been involved with many different species of mammals and birds. So I am well familiar with the topography and all available major and micro habitats. If we struggled to obtain any particular species for the time being, but sooner or later we obtained it anyhow. But this time in this project, I experienced total disappearance of my principal research species that I could not get even a glimpse over the period of 7 months and we are still clueless about the reason behind it. But we are determined to continue with our efforts and hopeful to solve the puzzle.

3. Briefly describe the three most important outcomes of your project.

1. Earlier small cat project (2005-2007) revealed the highest abundance of jungle cat population, (Patel 2011). During 2nd RSG we have also noticed that Jungle cat population has steady growth. We captured 12 individuals and also this cat was captured in camera trapping very frequently. This cat has been benefited by some sort of habitat modification, while observed.

2. Earlier observations (2004-2007), including 1st RSG (2009-2010) on rusty spotted cat revealed that this cat was very common for the region, but due to its elusiveness, nocturnal and arboreal habits its sightings are very difficult and it is therefore difficult to estimate numbers. But still we could obtain some individuals through camera trapping or by direct sightings. But this time with 2nd RSG, we have noticed something very serious happening with the entire known population of rusty spotted cat in and around Kevadi reserved forests, since we could not obtain even the minimum individuals equal to our recent past research attempted during 2009-2010.

3. Conservation awareness among local communities has been considerably improved compared to recent past years due to our research efforts.

4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).

One of the objectives of the study was to lead conservation movement for the rusty spotted cat and its forests through local community involvement. Apart from our two regular locals from Kevadi village namely Chatur and Paniyo, who have been appointed as team leaders of conservation movement and they have a responsibility to motivate other community members regarding protection of forests, anti-poaching patrol and any information connected to the rusty spotted cat sightings in and around the Kevadi Reserved forests, two more men added in the force namely Gulab and Parvat. Both were trained during the 2nd RSG period and by judging their skills, now the forest department have appointed both of them as local tourist guides. Now both of them have some source of extra income. While pursuing our objective to trap the rusty spotted cat, we encountered toughest challenges and therefore I engaged one more tribal man from very different tribal community than Kevadi region. His name is Amaro and now he is our regular tracker. He is from such a kind of tribal community that their main business was trapping and hunting of wildlife for bush meat and trophies, but now since last 70 years they have been involved in farming and given up all hunting. I have engaged him due to his ability to trace the elusive animal. When Amaro met with our other team members, it was the first time that two different tribal communities met for the first time and exchanged their views on cultural and religious customs of their respective tribes. And this happened due to 2nd RSG! and now harmony will be strengthen between totally unknown worlds. My move has boost up local's courage in involvement of conservation movement as well as realising their responsibility to protect the forests for everyone. The message also disseminated as, locals can also grow socio-economically like our team members, if the rusty spotted cat persists insistently in the forests of Kevadi. Our team members as well as some villagers from Kevadi had an opportunity to meet with foreign experts like Dr. Alexander Sliwa from Germany and Ms. Yvonne Rijsdijk from Foundation spots of Netherlands, to learn and to improve their livelihood through small donations. Our team members have already benefited with 2nd RSG through generating extra income by involving in conservation based research programme for the last 17 months.

5. Are there any plans to continue this work?

Yes. As I have already discussed above that something is seriously wrong with the entire known population of rusty spotted cat. During the 2nd RSG we have observed drastic population decline of the rusty spotted cat. But what happened with them and how they disappeared? Do rusty spotted cats depend upon any specific prey species and that's why it has happened? Unlike jungle cats, are the rusty spotted cat's habitat sensitive? Or are any other anthropogenic pressures responsible behind the decline of this cat's population? Any previous research of mine was not designed to conclude these mentioned doubts, except for the current radio telemetry phase. So now due to current scenario radio telemetry is the only available tool to reveal the mysteries behind the decline of this cat. This project was the first of its kind of a project on small cats especially the rare, elusive and rare attempted rusty spotted cat. Therefore 1 year was inadequate. There are many questions regarding ecology of this cat to be answered before making any definitive conservation guide line for this smallest cat.

6. How do you plan to share the results of your work with others?

A complete report will be prepared for sharing with the scientific world. The present effort has revealed the drastic population decline of rusty spotted cat in the study region. This is the first of its kind of the systematic research on this cat hence no literature is available on similar kind of

difficulties. It is therefore imperative to discuss this issue with the IUCN Cat Specialist Group and other leading cat research institutes like Panthera of USA, Zoological Society of London and Wildlife Institute of India.

7. Timescale: Over what period was the RSG used? How does this compare to the anticipated or actual length of the project?

The RSG was used for 17 months. The radio telemetry programme designed for 5 years from September 2010 to August 2015. First phase of radio telemetry was designed for 1 year for which the 2nd RSG has been used. One year was anticipated to capture at least one individual of rusty spotted cat and to learn ourselves about the fundamentals of radio telemetry. The actual 2nd RSG was for 12 months and extended further 6 months. But unfortunately even at the end of 17 months we struggled to catch even one individual of rusty spotted cat, which was our main objective.

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

Item	Budgeted Amount (£)	Actual Amount (£)	Difference (£)	Comments
Radio Telemetry Equipment (Advanced Telemetry Systems, INC, USA) M1820 mammal radio collar. 4 Units (£125x4=500) R410 Receiver one unit. (£543x1=543) Yagi Antenna one unit. (£79x1=79)	1122	1122	0	As proposed
Custom made single door traps. 10 traps. £22/trapx10=£220	198	220	-22	Instead of 6 traps from Duke, we prepared 10 custom made traps.
Per diem for the investigator @ £ 4/- X 340 days	1360	0	+1360	Investigator sacrificed all his per diem to balance the cost of the project at the optimum level.
Field Assistants 3. Local salary £40/monthx12months	1440	2720	-1280	We needed one more tribal man who can trace elusive animal so in all 4 trackers were kept in a team and were occupied for 17 months. (our efforts are still continued in the field)
Travel expenses for Intensive survey, Campaign & Monitoring	1230	1950	-720	Fuel prices increased by 20% and we worked for 17 months instead of 12 months.
Materials: posters, sign boards, photographs, clipping, batteries, reading material	200	200	0	As proposed.
Living expenses, radio telemetry installation and contingency.	400	600	-200	Food bills were increased for six more months and some hidden expenses like costs of baits, small repairing, bulbs, etc.
Report Writing	50	50	0	As proposed.
Total	6000	**6862**	-862	* Local exchange rate at the time of grant receipt: 1£= INR 72.4

9. Looking ahead, what do you feel are the important next steps?

As already discussed that entire known population of rusty spotted cat in and around Kevadi reserved forest has declined and something is really wrong with its population trend. Our observations during February 2011 to June 2012 have noticed population decline of rusty spotted cat. In this scenario our present radio telemetry is the only suitable programme to find out the cause of sudden population crash. It is therefore I am willing to continue with radio telemetry programme until 2015. Our first priority will be to trap one rusty individual. In fact our trapping efforts are still going on in the field, though the time period of 2nd RSG is over.

Simultaneously it is also plan to continue with the intensive camera trapping with the intensive camera trapping area of 25 km² and intensive night transect search during nights on all our previous night transect routes where we obtained rusty spotted cat during 2004-2007, covering nearly 100 Km².

10. Did you use the RSGF logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

Yes. We have used the RSGF logo on the dress designed for local field assistants. RSGF logo was used on the banner for the workshops. We acknowledged RSGF support in our presentations during the workshops. RSGF support has been also acknowledged in our final report to be submitted to the various scientific journals and the forest department as well. RSGF logo was also used in poster presentation at ZACC conference held at Woodland Park Zoo, Seattle, USA in March 2011. RSFG was also acknowledged on the website of Foundation Spots of the Netherlands.

11. Any other comments?

This project has also received worldwide attention and publicity through True luxury tours. Please visit website: www.trueluxurytours.com/conservation%20projects.html for further details**.** This project was also highlighted on the web page of Foundation Spots of Netherlands. The poster was also presented at ZACC conference held at Woodland Park Zoo, Seattle, USA in March 2011. Please visit website: http://www.zaccconference.com/2011conference.htm/Patel ZACC 2011 Poster.