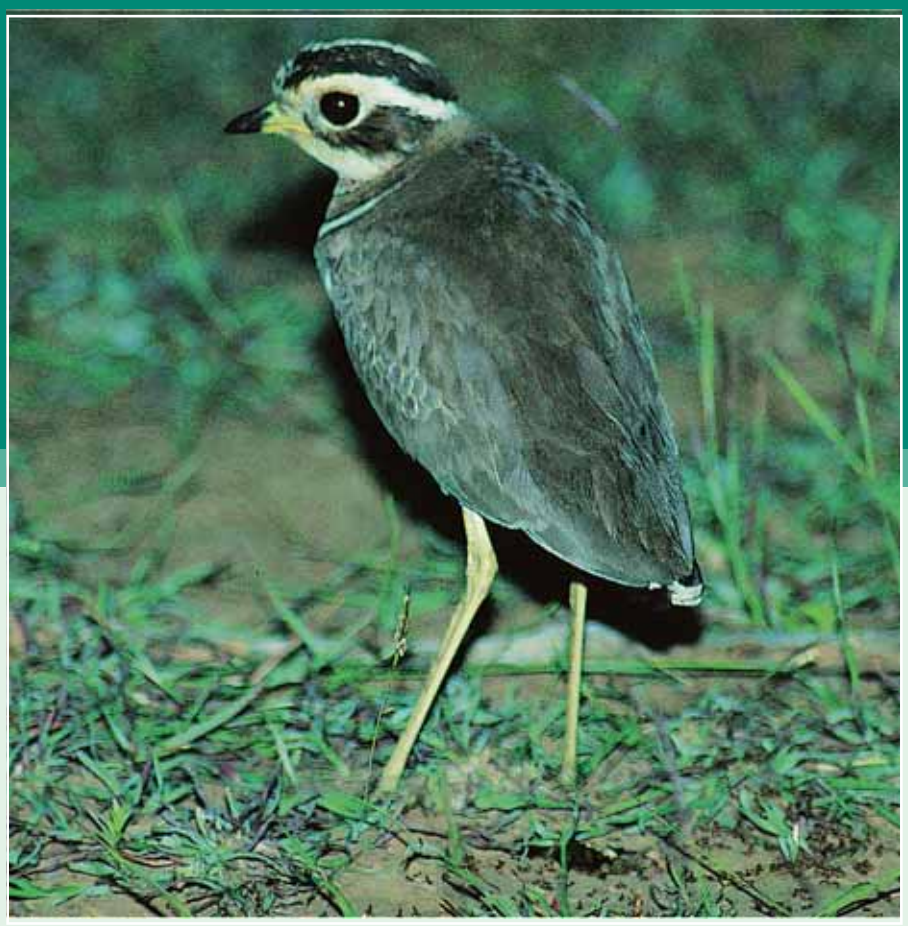
A Species Recovery Plan for Jerdon's Courser, *Rhinoptilus bitorquatus*



November 2010

Submitted by

Andhra Pradesh Forest Department

To

The Ministry of Environment and Forests, Government of India

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Front Cover Photograph: Jerdon's Courser *Rhinoptilus bitorquatus*
Simon Cook/BirdLife International

Back Cover Photograph: Sri Lankamala Wildlife Sanctuary Habitat

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Contents

EXECUTIVE SUMMARY

Jerdon's Courser *Rhinoptilus bitorquatus* is a nocturnal cursorial bird found only in the State of Andhra Pradesh, India. It is one of the world's rarest bird species and is classified as Critically Endangered (CR) by the International Union for Conservation of Nature (IUCN). The species was believed to be extinct until it was rediscovered in 1986 near Reddipalli village, Cuddapah District of Andhra Pradesh, India. The site where it was rediscovered was designated as the Sri Lankamaleswara Wildlife Sanctuary. Since 2000, research on the Jerdon's Courser and its habitat has been conducted by Bombay Natural History Society (BNHS) along with Royal Society for the Protection of Birds (RSPB) and the Universities of Reading and Cambridge, supported by the Darwin Initiative and the Andhra Pradesh Forest Department (APFD). There has been considerable progress in developing the standard survey techniques to detect their presence and describe the broad habitat requirements. However, there is a clear need for more research to procure baseline information on the species mainly through radio telemetry studies that is vital to its survival. In addition, the species is under great pressure from unsustainable development and management practices. This combination of a lack of information on the Jerdon's Courser, coupled with increasing pressure on its habitat, has prompted stakeholders to devise a Species Recovery Plan (SRP). The main purpose of the SRP is to secure the long-term survival of the Jerdon's Courser. The SRP advocates a multi-pronged approach that includes elements of research, monitoring, advocacy, conservation education, habitat management & training and funding. It clearly outlines responsibilities and timeframes to facilitate regular monitoring and evaluation. The document lays great stress on applying the 'precautionary principle' wherever possible considering the threatened status and restricted distribution of the species. The SRP is a result of inputs from a wide range of stakeholders including the government, NGOs, national and international scientists and civil society. It is therefore a very inclusive and realistic document. This SRP will serve as a reference for conservation managers, policy-makers, researchers, decision-makers and form the basis of future conservation actions.

SECTION I

Introduction

Jerdon's Courser, *Rhinoptilus bitorquatus* is a nocturnal cursorial bird and one of the world's rarest birds found only in Andhra Pradesh, India. Jerdon's Courser was believed to be extinct because none was recorded after 1900 until the species was rediscovered in 1986 near Reddipalli village, Cuddapah District of Andhra Pradesh, India (Bhushan 1986). The area where it was rediscovered was designated as the Sri Lankamaleswara Wildlife Sanctuary. In 2000, its known distribution was a single site a few hundred metres in diameter in scrub jungle near Reddipalli in the Sagileru valley. Since 2000, research conducted by Bombay Natural History Society (BNHS) along with Royal Society for the Protection of Birds (RSPB) and the Universities of Reading and Cambridge, funded by the Darwin Initiative and supported by Andhra Pradesh Forest Department (APFD), has made considerable progress in developing the standard survey techniques such as tracking strips and tape transects to detect their presence and described the broad habitat requirements. By following these methods three new sites where the Jerdon's Courser occur were identified in and around the Sri Lankamaleswara Wildlife Sanctuary (Jeganathan et al 2004a).

A study of the Jerdon's Courser using tracking strips has identified the preferred habitat as scrub jungle with open areas where the density of large bushes (> 2 m tall) is in the range 300–700/ha and the density of small bushes (< 2 m tall) is less than 1000 /ha (Jeganathan et al 2004a). Nine specific threats were identified with the major threat for the survival of this species being the loss and degradation of scrub forest (Jeganathan 2006, Senapathi et al 2007).

Since the known population and range of Jerdon's Courser are small and declining, it is categorized as Critically Endangered in the IUCN Red List (IUCN 2008). Very little information is available on the distribution, ecology, population size and habitat requirements of the species (Birdlife International 2001).

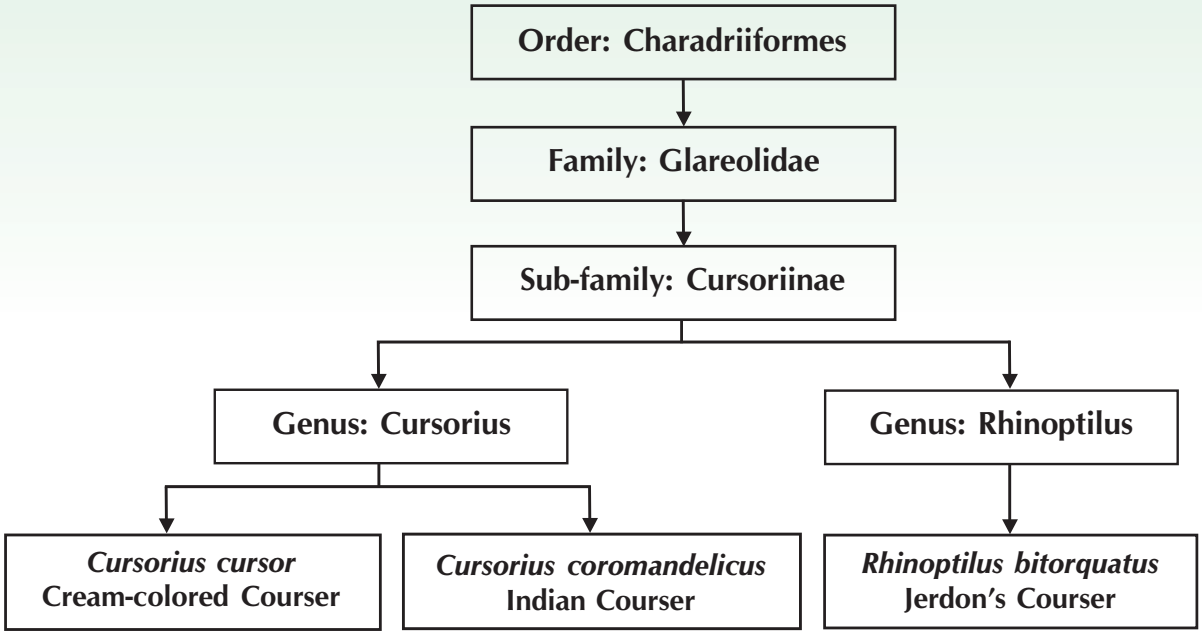
This document constitutes the first formal Species Recovery Plan for the Jerdon's Courser, which was prepared with the Bombay Natural History Society after discussions with organisations and individuals (see Appendix 1) who participated in a Workshop on the Species Recovery Plan for the Critically Endangered Jerdon's Courser held in Hyderabad on 29-30 June 2008 and 5th May, 2010. This recovery plan identifies the roles, responsibilities and actions to be taken to enhance the long-term survival of the species in the wild over the next 10 years (2010-11 to 2020-21). The actions involve several agencies and the Plan therefore requires that they work closely with the Andhra Pradesh Forest Department, who have primary responsibility for the management of Jerdon's Courser habitat.

Description of species

The Jerdon's Courser is the sole representative of Genus *Rhinoptilus* in India and nocturnal in habit like its African counterparts. It has large eyes, and a short yellow bill with black tip and yellow legs. Plumage characteristics include a brown breast with two narrow white bands, broad white lores and supercilium over dark cheek patches (Grimmett *et al*. 1998, Rasmussen & Anderton 2005).

Taxonomy

Jerdon's Courser is the member of the order Charadriiformes. It belongs to the family Glareolidae and further classified into Subfamily Cursoriinae (Maclean 1996). The subfamily Cursoriinae consists of birds of two distinct types: genus *Pluvianus* and true coursers. Eight species of true coursers are present around the world in three genera: genus *Cursorius*, genus *Smutsornis* and genus *Rhinoptilus*. In India, two species of Cursorius courser occur, the Cream-coloured courser *Cursorius cursor* and Indian Courser *C. coromandelicus*; and a single species of Rhinoptilus courser, Jerdon's Courser *Rhinoptilus bitorquatus* (Rasmussen & Anderton 2005). Jerdon's courser is one of three species in the genus *Rhinoptilus*, with the other two species occurring in Africa (Three-banded Courser *Rhinoptilus cinctus* and Bronze-winged Courser *R. chalcopterus*) (Maclean, 1996).



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Current conservation status and relevant legislation

Jerdon's Courser is endemic to Andhra Pradesh. Historical (19th Century) records are attributed to Andhra Pradesh and neighbouring areas of Maharashtra. Recent 20th and 21st Century records are all in Andhra Pradesh. The species is listed as Critically Endangered in the IUCN Red List (IUCN 2010). This is the highest of IUCN's categories of endangerment, and is only applied to the species closest to extinction. The Jerdon's Courser is listed under Schedule I of the Indian Wildlife (Protection) Act 1972, and is considered a priority species under the National Wildlife Action Plan (2002 – 2016) of the Government of India (Government of India, 2002). It has been identified by the Government as one of twelve species to be included in the Integrated Development of Wildlife Habitats programme (11th 5 year plan of the Government of India). This species is also proposed to be notified as a threatened species under section 38 of the Biological Diversity Act, 2002.

Historical and Current distribution

Historical distribution of the Jerdon's Courser (1848-1900)

Jerdon's Courser was first recorded for science by T.C. Jerdon c.1848 "from the hilly country above the Eastern Ghats off Nellore and in Cuddapah district" (Blyth 1848). In May 1867 W.T. Blanford sighted this bird "close to Sironcha on the Godavari" which is in the Eastern Maharashtra. Later in March 1871 he sighted it near Bhadrachalam, which is in Andhra Pradesh (Blanford 1898). In 1900, Howard Campbell recorded the Jerdon's Courser near Anantapur in Andhra Pradesh (Baker 1929). Figure 1 shows the distribution of these historical records. For almost 86 years, there was no sighting of the Jerdon's Courser, until it was rediscovered near Reddipalli, in the Cuddapah district of Andhra Pradesh in January 1986 by Bhushan (1986).

Figure 1 shows the historical records of the Jerdon's Courser (1848 – 1900) Map not to scale

Recent records (1986-2008)

Ever since the Jerdon's Courser was rediscovered, confirmed records have only come from a few sites in and around the Sri Lankamaleswara Wildlife Sanctuary in the Cuddapah district of Andhra Pradesh. Soon after the rediscovery, a survey was conducted mainly in southern Andhra Pradesh that included Cuddapah, Nellore, Chitoor and Anantapur districts (Bhushan 1994). During this survey confirmed reports of the Jerdon's Courser were obtained from six places and it was sighted in two out of these six places. These sight records were only from Cuddapah district. Unconfirmed reports of the Jerdon's Courser were from fourteen places (Figure 2). It should be noted that except from the places where it has been sighted, reports from other places including confirmed and unconfirmed reports were obtained either from local tribal people or bird trappers. Samant & Elangovan (1997) surveyed in the southern Andhra Pradesh from May 1994 – October 1995 but mainly in and

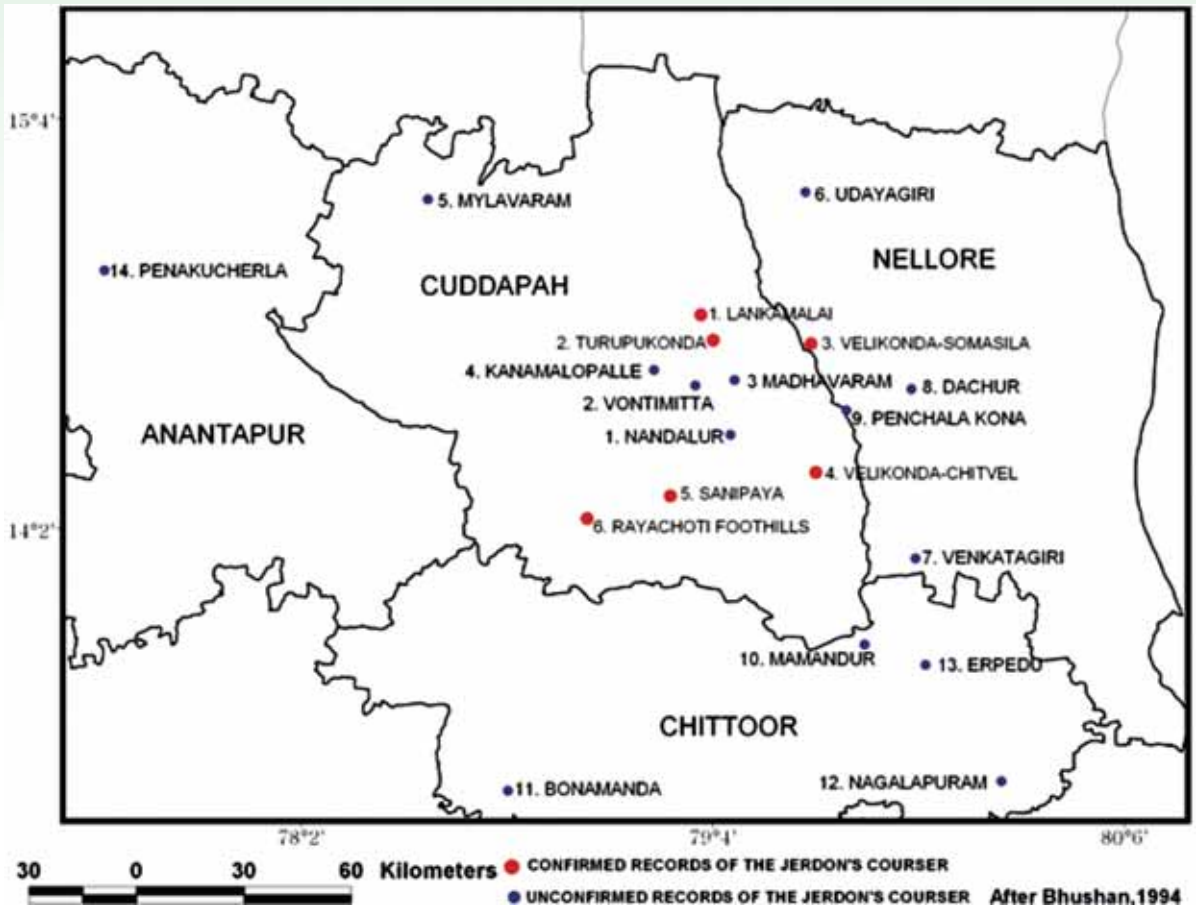

Figure 2 shows Jerdon's Courser records from 1986-2000. Map based on Bhushan 1994

around the Sri Lankamaleswara Wildlife Sanctuary. They noted a few more sight records, mainly from in and around the rediscovery site. There is no record of the Jerdon's Courser from the northern part of the Andhra Pradesh since the 19th Century.

Prior to 2000, records of Jerdon's Courser were mainly from sightings during night-time walks. In 2001, a new method was developed for detecting the presence of Jerdon's coursers by deploying tracking strips upon which the birds leave their distinctive footprints, which differ from those of other bird species present in the area. This was established by setting up automatic cameras triggered by birds interrupting an infrared beam, oriented horizontally close to the ground. This allows the identity of birds which left a particular set of tracks to be identified (Jeganathan et al 2002). Surveys using this method have detected the species in three new places (Jeganathan 2006), though the habitat in one of these places was subsequently destroyed during the construction of the Telugu-Ganga canal.

The call of the Jerdon's Courser was not known until it was recorded and identified in September 2002 (Jeganathan & Wotton 2004). The identity of the species making the call was established by seeing an individual calling, and the call was recorded on tape. Trials of playing a tape recording of Jerdon's Courser calls in suitable habitat within about 1 km of the previously known site during the evening (45-90 minutes after sunset) elicited responses from Jerdon's Courser from nine new places. In addition, a tape transect survey method was devised to find the Jerdon's Courser in new areas. Following this method, surveys were carried out outside the known area in potentially suitable habitat in and around the Sanctuary. Tape playback was carried out at 403 points. These points were surveyed once and the Jerdon's Courser responded at three points. All of these places are within 14 km of the original rediscovery site near Reddipalli (Jeganathan 2006). All records of Jerdon's Courser since 2000, including those from sight records, camera trap captures, footprints and calls are shown in Figure 3.

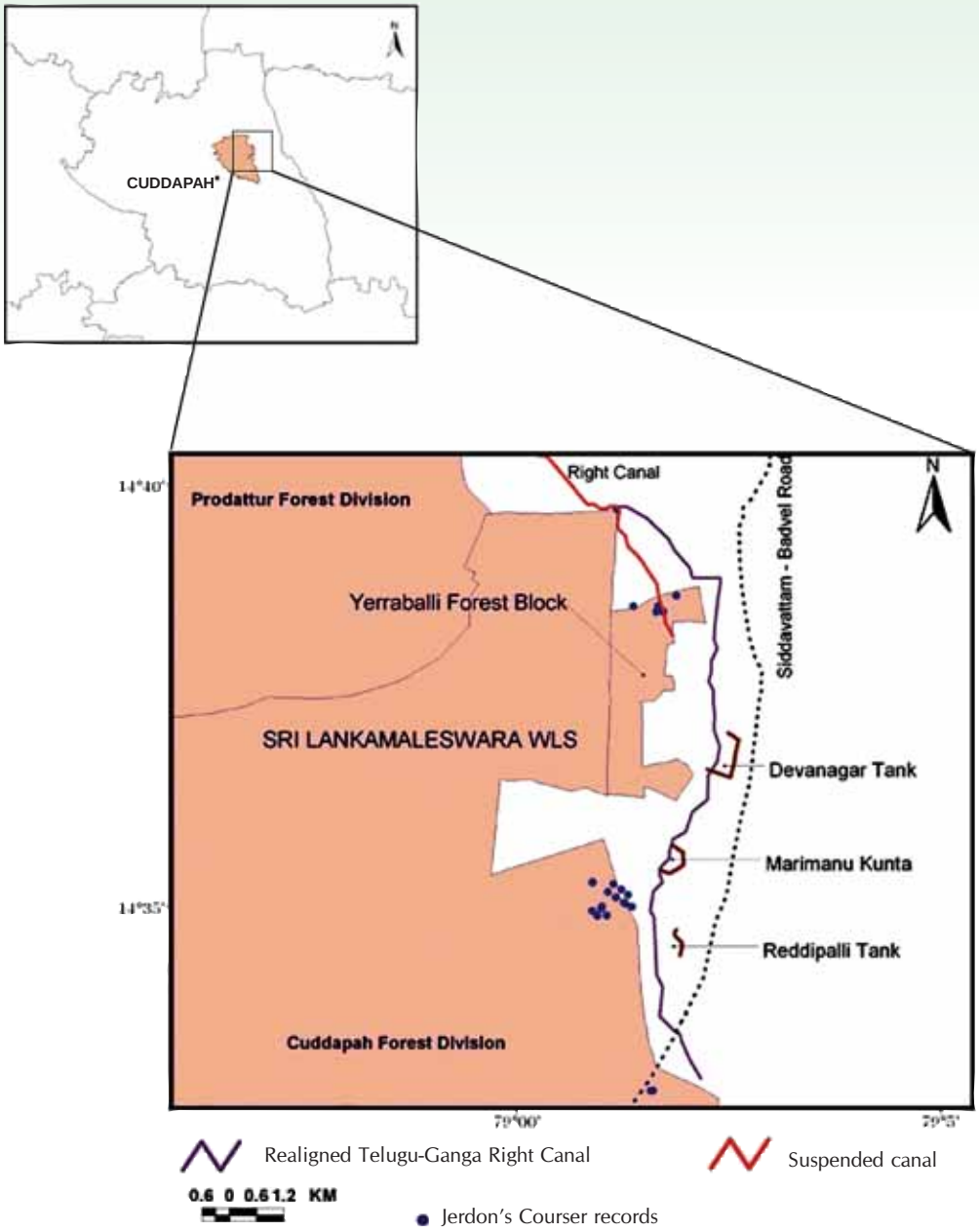

Figure 3 shows the current distribution of the Jerdon's Courser

Critical habitat

Jerdon's Courser has been reported mainly from scrub jungle habitat. It inhabits sparse, scrub-forest interspersed with patches of bare ground, in gently undulating, rocky foothills (Bhushan 1986). A recent study carried out in and around the Sri Lankamaleswara Wildlife Sanctuary showed that Jerdon's coursers have a strong preference for a particular density of scrub jungle habitat. They are most likely to occur where the density of large (>2m tall) bushes was in the range 300-700ha, and where the density of smaller bushes was less than 1000/ha (Jeganathan *et al*. 2004a). Jerdon's coursers also seem to prefer areas where there are woody plant species, such as *Hardwickia binata*, that are characteristic of mature scrub which has not been subjected to major disturbance, such as clearance, for a long time (Jeganathan *et al*. 2004a). Areas of scrub jungle with bush densities suitable for Jerdon's Courser can be mapped using satellite imagery. A map of scrub jungle and those parts of it suitable for Jerdon's Courser in and near the Sri Lankamaleswara Wildlife Sanctuary in December 2000 is shown in Figure 4. Conversion of scrub jungle to farmland, pastures and other land cover types has been occurring (Senapathi *et al*. 2007), so the extent of scrub jungle is now less than is shown in the map.

Scrub Jungle with open areas are critical habitat for the survival of the Jerdon's Courser

Ecology

Very little is known about the behaviour of the Jerdon's Courser (BirdLife International 2001). Two samples of Jerdon's Courser droppings were found to consist mainly of body parts of Macrotermes termites and ants (Jeganathan et al 2004b). Nothing is known of the breeding ecology of Jerdon's Courser (BirdLife International 2001), no nests or young birds have ever been recorded. However, the footprints of a young bird along with an adult Jerdon's Courser were found on one of the soil strips deployed, indicating that successful breeding has occurred in the study area (Jeganathan et al 2004b).

Current Threats

Scrub jungle clearance for farming and plantations and development projects in and around the protected areas are the main and best documented threats to the Jerdon's courser. Other, less well documented, threats include illegal trapping of birds. Ground surveys and remote sensing studies both show that there has been substantial clearance of scrub jungle near the boundary of the Sri Lankamaleswara Wildlife Sanctuary, including areas from which there are recent records of Jerdon's courser (Jeganathan 2006, Senapathi et al 2007). The reasons for recent scrub jungle clearance outside the Sanctuary have been the creation of areas of pasture for domesticated animals, growing of dryland crops, plantations of exotic trees and citrus orchards, quarrying and the construction of the Telugu-Ganga Canal. Inside the Sri Lankamaleswara Wildlife Sanctuary, developmental activities such as construction of check dams, trenches and establishment of exotic plantations have caused loss and degradation of scrub jungle. The increasing number of settlements near the sanctuary area has almost certainly led to an increase in illegal bird trapping. Whilst Jerdon's coursers are not the main target of bird trappers, the species is likely to be caught and killed opportunistically by trappers. However, this activity, being illegal, is carried out in secret and not documented. Grazing of scrub jungle and woodcutting occur within the Sri Lankamaleswara Wildlife

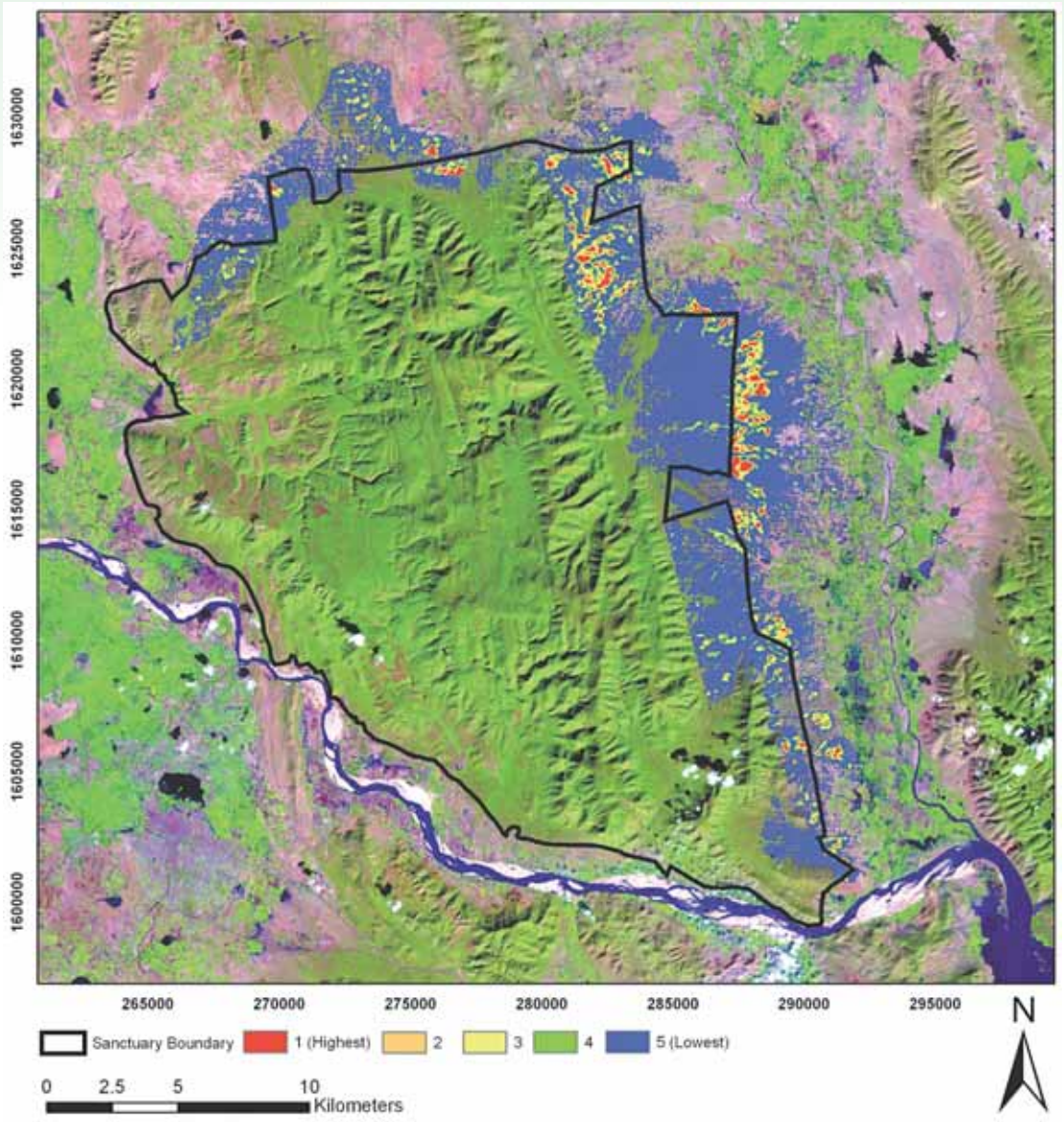

Figure 4. Map of the Sri Lankamaleswara Wildlife Sanctuary (outlined in black), based upon a satellite image. The area covered by scrub jungle was identified by multitemporal analysis of satellite imagery and is shown by the colours, blue, green, yellow orange and red. Within this scrub jungle, the areas likely to be best (red) and worst (blue) for Jerdon's courser are shown, with intermediate areas in the intermediate colours of the spectrum. The habitat quality was determined by estimating the number of large bushes (>2 metres tall) from the satellite image and using a quadratic logistic relationship between expected Jerdon's courser use and bush density in each locality and its surrounding area. Red denotes the best areas, which are estimated to contain 20% of the total Jerdon's courser activity, red and orange together contain 40% of activity, red, orange and yellow together contain 60% and red, orange , yellow and green together contain 80% of activity. Note that some large areas of apparently suitable habitat lie outside the Wildlife Sanctuary

Sanctuary, especially at the edge. At recent low levels, this is probably beneficial to Jerdon's coursers in maintaining the density of bushes that they prefer. However, the increase in the number of human settlements near the Sanctuary might cause grazing of scrub jungle and woodcutting to become excessive and to reduce the density of bushes below that preferred by Jerdon's courser. However, it is also possible that the construction of the Telugu-Ganga Canal around the Sri Lankamaleswara Wildlife Sanctuary might act as a barrier to local people and restrict access to the scrub jungle. This might result in a higher density of bushes than is preferred by Jerdon's courser.

SECTION II

Vision

The vision of this Recovery Plan is to "Secure the long-term future of the Jerdon's Courser and the scrub forest habitat it is found in."

Aim

This recovery plan aims to "Improve the conservation status of the Jerdon's Courser within the next 10 years (2010-11 to 2020-21)."

PART I

Species Level Recovery Action and Study of Population Ecology:

Tracking strips or camera traps should be used to monitor the abundance and distribution of Jerdon's courser in areas where they have been recorded previously and in areas where suitable habitat is identified within and near the Sanctuary. The number of strips or traps and the duration of monitoring should be sufficient to demonstrate the absence of Jerdon's coursers from the sampled area with a 1% probability of error. Listening for calls in the evening and tape transects can be used to confirm presence but are not thought to be reliable for monitoring.

The monitoring programme should ensure that abundance and distribution are monitored at intervals of no longer than five years at any given location.

Radio-tagging should be used to assess ranging behaviour and habitat use. Initially, two birds should be tagged, but five birds should be studied once the methods are established. Priority topics for research are ranging behaviour, location of roost sites and nesting places, frequency of calling and responsiveness to taped call playback. Collection of faecal samples from roosts for diet analysis should also be undertaken.

The tracking strips used to monitor Jerdon's coursers should also be used to monitor other wildlife and its importance for Jerdon's courser (e.g. Chinkara *Gazella bennetti* and other wild ungulates).

Use satellite imagery of areas other than the presently known range of the Jerdon's Courser to map scrub jungle. Then use satellite imagery to map areas with suitable bush density within the scrub jungle. Areas identified as suitable should be visited. If their apparent suitability is confirmed, the presence or absence of the species should be assessed using automatic camera traps, listening for calls in the evening and tape transects.

Training courses should be held to train Andhra Pradesh Forest department staff, local tribal communities (e.g. Yanadi tribe) and volunteers to use tracking strips and cameras and to identify the call to help monitor the species.

The 'Precautionary Principle' should be applied until evidence of the presence of the Jerdon's Courser is gathered for non-protected areas. Forestry activities such as clearing the scrub for plantations, construction of check dams should be stopped in case the area identified as suitable falls in the reserve forest. Tracking strip, tape transect and camera trap surveys should be carried out in these areas involving BNHS, Forestry staff, local communities and volunteers. Kaluvi kodi (Telugu name for Jerdon's Courser) Conservation Committees (KCC) should be involved and utilized for the census survey, habitat protection and monitoring if the potentially suitable habitats falls outside protected areas and reserve forest.

PART II

Habitat Level Recovery:

The critical habitat for the species has been mapped using a combination of ground surveys and remote sensing in and around the Sri Lankamaleswara Wildlife Sanctuary. A proportion of this type of habitat lies just outside the current boundary of the Sanctuary. Some of this is in the process of being transferred to the Forest Department. Scrub jungle with other characteristics may be needed for breeding and roosting, but this is not yet known.

So far, the known locations are all in or near the Sri Lankamaleswara Wildlife Sanctuary but areas from which records are available since 2000 should be considered as known locations for the species and should all be protected. The species might also occur elsewhere in Andhra Pradesh, but no recent confirmed records are available.

Beneficial management activities to maintain the critical habitat include:

a. **Light to moderate Grazing and woodcutting**
Light grazing and woodcutting sufficient to maintain the optimal density of bushes and ground cover for the species should be encouraged. To facilitate this, special measures will be needed to allow controlled access to the Sri Lankamaleswara Wildlife Sanctuary by local people for the purpose of grazing and woodcutting. These measures will include steps to ensure that the Telugu-Ganga Canal does not prevent access by acting as a barrier.

b. Prevention of illegal trapping and hunting of Jerdon's courser and of other animal species. Killing of Jerdon's coursers by trappers and hunters should be prevented both inside and outside the Sri Lankamaleswara Wildlife Sanctuary. Illegal trapping other wildlife species should be prevented which may be important in creating and maintaining suitable habitat. For example, droppings of wild ungulates may support insect prey.

c. Prevention of clearing of native shrubs and trees for inappropriate management activities.

d. Planting of plant species not indigenous to the area and habitat should be avoided also construction of percolation ponds, waterholes, trenches, check dams, quarries, etc. should be stopped.

Research and Monitoring:

The extent of native scrub jungle habitat in and around the Sanctuary should be measured at regular intervals using remote sensing. There should also be recording on the ground of habitat extent and changes. Local people could be involved in this.

The condition of the scrub jungle habitat, especially the density of bushes (number per hectare) and the nature and structure of ground vegetation should also be monitored. The density of large bushes can be monitored using remote sensing, but some aspects (e.g. ground vegetation) will require ground surveys at regular intervals.

The monitoring programme should ensure that extent and condition of habitat for Jerdon's courser are monitored at intervals of no longer than five years at any given location.

Human activities, especially grazing and woodcutting, should be monitored. Tracking strips, of the same kind used to monitor Jerdon's courser, should be used to monitor intensity of use by domestic ungulates. Records should also be kept of the numbers of livestock entering the Sanctuary. These records can also be used for regulating grazing. Recording of signs of woodcutting should be done by ground surveys. The volume of fuel wood extracted should be monitored.

Protection Plan:

Illegal bird trapping and hunting has been witnessed quite frequently in and around the Sri Lankamaleswara Wildlife Sanctuary. However quantitative information is lacking on this aspect. The main target species in this area are grey francolin and Quail spp. which commonly occur in this region. Although trapping exclusively for the Jerdon's Courser was not reported, it is likely that it may be caught accidentally in the nooses and nets set for other bird species. It should be noted that on one occasion a bird trapper was observed close to the important Jerdon's Courser area.

To mitigate this problem it is essential to work with the local communities who live around the sanctuary, especially with the Yanadi tribal community who are traditionally known as bird trappers. This can be achieved by continuous awareness programmes while building the strong rapport with the local communities and by implementing initiative like identifying the individuals from the communities involved in these activities. Providing them with alternative livelihood and incorporating community in various conservation activities such as animals tracking, protection watches and guides while making use of their skills to protect the species and its habitat. Along with these initiatives, enforcing the existing laws is essential.

Communication Strategy:

Awareness of local people about the need for scrub jungle management practices which enhance habitat quality is essential. For example, the need to avoid overgrazing and overexploitation of fuel wood. The value of controlled grazing and fuel wood harvesting and the development of simple ways based on scientific and/or traditional basis to regulate it should be given equal prominence.

Video footage on the standard survey techniques to detect the Jerdon's Courser should be produced. Efforts should be taken to get footage of live Jerdon's Courser. Information on the Jerdon's Courser and its importance should be made available for the public in an exclusive website.

The interpretation centre should be reopened and should become the focal point for creating awareness on the Jerdon's Courser and its scrub jungle habitat. The centre should be well equipped and staffed by the Andhra Pradesh Forest Department.

PART III

Institutional Framework: Plan of Operation:

There are four objectives of this recovery plan.

1. To ensure that the Jerdon's courser and its existing habitat are well protected and appropriately managed.
2. To locate potentially suitable habitats outside the known range of Jerdon's courser and to determine whether the species occurs there.
3. To undertake research to support conservation efforts and monitoring to track future population and habitat changes,
4. To raise awareness of the conservation issues and ensure that local communities and the wider public have a positive impact on the conservation of Jerdon's courser.

Recovery Actions and administration:

While support for the implementation of the actions resides with the Andhra Pradesh Forest Department (APFD), Bombay Natural History Society (BNHS) and Nature Conservation Foundation (NCF), World Wide Fund for Nature (WWF), Hyderabad, Andhra Pradesh Chapter, Wildlife Institute of India (WII), Dehradun, Asian Wildlife Foundation (AWIFO), Kadapa and Birdwatcher's Society Andhra Pradesh (BSAP), Hyderabad, other organizations are encouraged to provide support and to implement recovery actions where appropriate.

National, state, regional, and village level Kaluvi Kodi Conservation Committee's will be formed to plan, to discuss the financial implications, execute, assess, and review the actions given below. At National level, officials from MoEF, state forest department and other relevant department officials, Governmental and non governmental scientific institutions, national and international scientist, NGOs and other relevant experts will discuss and decide the actions to be taken for the conservation of the Jerdon's Courser. At state level the committee will be formed and headed by top forest department officials. NGOs, national and international scientist, field researchers will be the part of this committee. At regional level forest department officials from states from where the Jerdon's Courser has been reported and the potentially suitable habitat exist will be a part of this regional committee. In addition to that, field researchers, scientists, NGOs working on the various aspects of ecology and conservation of the Jerdon's Courser and its habitat will be the part of this committee. Kaluvi Kodi Conservation Committee will be formed at local level. Relevant village heads, local NGOs, forest department officials and local staff, researchers and other relevant local peoples will be a part of this committee.

The national and state committees will assess and review the work once in a year and other committees will meet and discuss the plan for executing the actions as and when it is necessary. The recovery plan prepared now will be revisited once in 5 years essentially to review the work and to receive critical comments from the other committee members.

Action	Priority	Time Scale	Lead agencies
Objective 1: To ensure that the Jerdon's courser and its existing habitat are well protected and appropriately managed.			
Action 1.1: Areas from which confirmed records are available since 2000 should all be protected by being included within the boundary of protected areas managed appropriately for Jerdon's Courser by APFD	High	Short	APFD
Action 1.2: Management of scrub jungle within the Sanctuary should be directed to maintaining and enhancing the habitat of Jerdon's courser and deleterious activities avoided.	Critical	Short	APFD
Action 1.3: In areas of the Sanctuary where scrub jungle has been destroyed or damaged it should be restored through the removal of invasive plants and natural regeneration as appropriate.	High	Long	APFD
Action 1.4: Within the Sanctuary, existing plantations of non-native tree species (e.g. eucalyptus and bio-diesel plantations) should be removed and the areas restored to native scrub jungle.	High	Long	APFD
Action 1.5: Illegal hunting and bird trapping should be prevented within the critical habitat of the Jerdon's courser both inside and outside the Sanctuary.	High	Medium	APFD
Objective 2: To locate potentially suitable habitats outside the known present range of Jerdon's courser and to determine whether the species occurs there.			
Action 2.1: Use satellite imagery to map scrub jungle habitat with suitable bush density for Jerdon's courser within the historical range.	High	Medium	BNHS, NCF, APFD.
Action 2.2: To protect any newly identified areas of suitable habitat immediately outside the SLWLS, the precautionary principle should be applied with regard to any activities within these areas.	High	Medium	APFD
Action 2.3: Efforts should then be made to detect Jerdon's coursers within potentially suitable habitats identified.	High	Long	APFD, BNHS, BSAP, NCF
Action 2.4: Any new locations discovered to hold Jerdon's coursers should receive designation that ensures the protection of the critical habitat.	Critical	Long	APFD
Objective 3: To undertake research to support conservation efforts and monitoring to track future population and habitat changes.			
Action 3.1: Monitor the abundance and distribution of Jerdon's courser in areas where they have been recorded previously and in suitable habitat identified within and near the Sanctuary.	Critical	Medium	APFD, BNHS, NCF & WII.
Action 3.2: The extent of native scrub jungle with favourable characteristics for Jerdon's courser should be mapped and measured at and around known records using remote sensing and ground surveys at intervals of no more than 5 years.	High	Long	BNHS, NCF.
Action 3.3: Human activities, especially grazing and woodcutting, should be monitored and used to regulate activities. .	High	Long	APFD, BNHS, NCF

Action	Priority	Time Scale	Lead agencies
Action 3.4: Efforts should be made to capture and radio-track Jerdon's courser to gather information on their ranging behaviour and ecology.	Critical	Medium	BNHS, NCF APFD
Action 3.5: Tracking strips should be used to monitor the activity of wild and domesticated ungulates whose presence is believed to affect the suitability of habitat for Jerdon's courser.	Medium	Long	BNHS, NCF.
Action 3.6: Hold training courses on the use of tracking strips, camera traps and call identification call for Andhra Pradesh Forest Department staff, local tribal communities (e.g. Yanadi tribe) and volunteers.	Medium	Long	BNHS, NCF, BSAP.
Objective 4: To raise awareness at local, state and national level of the conservation issues surrounding Jerdon's courser and ensure a positive impact on the conservation of Jerdon's courser from all levels.			
Action 4.1: Re-open the interpretation centre in Konduru near the Sanctuary and information should be provided for visitors on the Jerdon's courser, its habitat and other local wildlife species and their value.	Medium	Medium	APFD
Action 4.2: Publicity materials, such as brochures, posters and stickers, explaining the importance of the Jerdon's Courser should be produced both in English and Telugu and widely distributed.	Medium	Medium	APFD, BNHS, NCF, WWF, AWIFO, BSAP
Action 4.3: Opportunities should be taken to raise the profile of the Jerdon's Courser at local, state and national level.	High	Long	APFD, BNHS, NCF, WWF, AWIFO, BSAP
Action 4.4: Proposals should be sent to the state government to make Jerdon's Courser the state bird of Andhra Pradesh.	Medium	Medium	APFD, BNHS NCF, WWF, AWIFO, BSAP
Action 4.5: Local guides should be trained for showing visitors the Jerdon's courser although restrictions should be applied to minimise disturbance.	Medium	Medium	APFD, BNHS, NCF

Priority	**Timescale**
Critical	Short: completed within the next 1 year
High	Medium: completed within the next 1-3 years
Medium	Long: completed within 1-5 years or more

Lead Agencies.

APFD – Andhra Pradesh Forest Department.
BNHS – Bombay Natural History Society, Mumbai.
NCF – Nature Conservation Foundation, Mysore.
WWF – World Wide Fund for Nature, Hyderabad, Andhra Pradesh Chapter.
WII – Wildlife Institute of India, Dehradun.
AWIFO – Asian Wildlife Foundation, Kadapa.
BSAP – Birdwatchers' Society of Andhra Pradesh

Budgetary Support:			
Objectives	**Quantity**	**Budget proposed in lakhs (₹)**	**Lead Agencies**
Objective 1: To ensure that the Jerdon's Courser and its existing habitat are well protected and appropriately managed.			
Action 1.1: Areas from which confirmed records are available since 2000 should all be protected by being included within the boundary of protected areas managed appropriately for Jerdon's Courser by APFD. So for better protection, patrolling, establishment and demarcation of the protected areas by constructing forest cairns.	For 4000 ha	30.00	APFD
Action 1.2: Management of scrub jungle within the Sanctuary should be directed to maintaining and enhancing the habitat of Jerdon's Courser and deleterious activities avoided. To provide resources for better management for the protected area managers and staff, researchers other staff-welfare incentives, hiring of vehicles etc. Reducing existing anthropogenic pressure on scrub jungle habitat by sensitizing the sustainable use of the scrub jungle habitat to the villagers and to provide chulas, cooking gas connections, etc.	Lump sum Lump sum	50.00 100.00	APFD
Action 1.3: In areas of the Sanctuary where scrub jungle has been destroyed or damaged it should be restored through the removal of invasive plants and natural regeneration as appropriate. For restoration of habitat by raising and planting native scrub species in the region where the habitat is degraded by invasive and exotic plantations.	Lump sum	20.00	APFD
Action 1.4: Within the Sanctuary, existing plantations of non-native tree species (e.g. eucalyptus and bio-diesel plantations) should be removed and the areas restored to native scrub jungle. For manual removal of exotic plants in the protected areas by Kaluvi Kodi Conservation Committee members and volunteers.	Lump sum	20.00	APFD
Action 1.5: Illegal hunting and bird trapping should be prevented within the critical habitat of the Jerdon's Courser both inside and outside the Sanctuary. To provide better equipment, communication facilities, travel for the staff to mitigate this delirious activities. For capacity building of the inter-departmental staff in combating hunting and trapping in this region. To engage trackers from the local communities. For secret service fund for developing local intelligence networks to control encroachments, hunting and trapping.	75 person	150.00	APFD
Objective 2: To locate potentially suitable habitats outside the known present range of Jerdon's courser and to determine whether the species occurs there.			
Action 2.1: Use satellite imagery to map scrub jungle habitat with suitable bush density for Jerdon's Courser within the historical range. For satellite images, software's, GPS systems, Researchers support, Vehicle and fuel, Contingencies	Lump sum	30.00	BNHS, NCF, APFD

	Quantity	Budget proposed in lakhs (₹)	Lead Agencies
Action 2.2: To protect any newly identified areas of suitable habitat immediately outside the SLMWS, the precautionary principle should be applied with regard to any activities within these areas. For better protection, patrolling, establishment and demarcation of the protected areas by constructing forest cairns and land procurement.	Lump sum	40.00	APFD
Action 2.3: Efforts should then be made to detect Jerdon's Courser within potentially suitable habitats identified. For conducting tracking strip, tape transect and camera trap surveys.	Lump sum	30.00	APFD, BNHS, BSAP, NCF
Action 2.4: Any new locations discovered to hold Jerdon's Courser should receive designation that ensures the protection of the critical habitat. For better protection, patrolling, establishment and demarcation of the protected areas by constructing forest cairns and land procurement.	Lump sum	30.00	APFD
Objective 3: To undertake research to support conservation efforts and monitoring to track future population and habitat changes.			
Action 3.1: Monitor the abundance and distribution of Jerdon's Courser in areas where they have been recorded previously and in suitable habitat identified within and near the Sanctuary. For conducting tracking strip, tape transect and camera trap surveys.	Lump sum	30.00	APFD, BNHS, NCF & WII
Action 3.2: The extent of native scrub jungle with favourable characteristics for Jerdon's courser should be mapped and measured at and around known records using remote sensing and ground surveys at intervals of no more than 5 years. For habitat recording & analysis, satellite image analysis, ground truthing surveys, equipment, field research programme, publications.	Lump sum	40.00	APFD, BNHS, NCF
Action 3.3: Human activities, especially grazing and woodcutting, should be monitored and used to regulate activities. For better management, patrolling, alternative livelihood for different types of graziers, for assessing the impact of the grazing and human activities and for field research in relation to this.	Lump sum	50.00	APFD, BNHS, NCF
Action 3.4: Efforts should be made to capture and radio-track Jerdon's courser to gather information on their ranging behaviour and ecology. For equipment, consultancy, researchers support, vehicle, field research programme	Lump sum	30.00	BNHS, NCF, APFD
Action 3.5: Tracking strips should be used to monitor the activity of wild and domesticated ungulates whose presence is believed to affect the suitability of habitat for Jerdon's Courser. Field research programme on this aspect	Lump sum	20.00	BNHS, NCF
Action 3.6: Hold training courses on the use of tracking strips, camera traps and call identification call for Andhra Pradesh Forest Department staff, local tribal communities (e.g. Yanadi tribe) and volunteers.	Lump sum	10.00	BNHS, NCF, BSAP

	Quantity	Budget proposed in lakhs (₹)	Lead Agencies
Objective 4: To raise awareness at local, state and national level of the conservation issues surrounding Jerdon's Courser and ensure a positive impact on the conservation of Jerdon's courser from all levels.			
Action 4.1: Re-open the interpretation centre in Konduru near the Sanctuary and information should be provided for visitors on the Jerdon's Courser, its habitat and other local wildlife species and their value.	Lump sum	30.00	APFD
Action 4.2: Publicity materials, such as brochures, posters and stickers, explaining the importance of the Jerdon's Courser should be produced both in English and Telugu and widely distributed.	Lump sum	30.00	APFD, BNHS, NCF, WWF, AWIFO, BSAP
Action 4.3: Opportunities should be taken to raise the profile of the Jerdon's Courser at local, state and national level.	Lump sum	30.00	APFD, BNHS, NCF, WWF, AWIFO, BSAP
Action 4.4: Local guides should be trained for showing visitors the Jerdon's Courser although restrictions should be applied to minimise disturbance.	Lump sum	30.00	APFD, BNHS, NCF
Administration			
For National Jerdon's Courser Recovery plan Committee (Consist of MoEF Officials, Governmental and Non Governmental research institutions)	Lump sum	5.00	
For State Jerdon's Courser Recovery plan Committee (Consist of Andhra Pradesh Forest Department officials, relevant governmental department officials & NGO's)	Lump sum	5.00	
For Regional Jerdon's Courser Recovery plan Committee (Consist of Andhra Pradesh Forest Department officials – CCF, CF & DFO of Kadapa, Anantapur, Chittor, Kurnool, Prodattur, relevant governmental department officials & NGO's)	Lump sum	5.00	
For Kaluvi kodi Conservation Committee (Consist of Andhra Pradesh Forest Department officials, relevant governmental department officials, NGO's)	Lump sum	10.00	
Total proposed amount		**825.00**	

Appendices:

Appendix 1

Agenda of workshop on the species recovery plan for the critically endangered Jerdon's Courser held on 29th & 30th June 2008.

Day 1: Sunday, 29 June 2008. Venue: Hotel Kakatiya, Hyderabad

Time	Programme
09:30 - 09:45	Inauguration and lighting of the lamp
09:45 - 10:00	Welcome address by Dr. Asad R. Rahmani, Director, BNHS
10:00 - 10:30	Address by Mr. Hitesh Malhotra, I.F.S, PCCF (WL), Andhra Pradesh Forest Department
10:30 - 11:00	Conservation of the Jerdon's Courser 2000 – 2008 by Dr. P. Jeganathan, Project Scientist, BNHS
11:00 - 11:30	Tea Break
11:30 - 01:00	Mapping the Jerdon's Courser Habitat by Dr. Ioannis Vogiatzakis, University of Reading, U.K.
01:00 - 02:00	Lunch Break
02:00 - 03:00	How many Jerdon's Courser's are there in the world? by Prof. Rhys Green, University of Cambridge & RSPB
03:00 - 03:30	Discussion and end of day's proceedings

Day 2: Monday, 30 June 2008

Time	Programme
09:20 - 09:30	Welcome address and introduction of participants by Dr. Asad R. Rahmani, Director, BNHS
09:30 - 10:00	Introduction to recovery objectives & crieteria for the Jerdon's Courser by Dr. P. Jeganathan, Project Scientist, BNHS
10:00 - 11:00	Discussions on Identification of new sites & Ecological research and monitoring strategy
11:00 -11:30	Tea Break
11:30 - 01:00	Discussions on Habitat monitoring and assessment & Habitat protection and enhancement
01:00 - 02:00	Lunch Break
02:00 - 03:00	Discussions on Threat monitoring and mitigation & Community awareness strategy
03:00 - 03:30	Concluding remarks & Recap of the workshop
03:30 - 03:40	Vote of Thanks

Appendix 2

List of participants at the first Jerdon's Courser recovery plan workshop held on 29th & 30th June 2008.

Sl. No.	Government Departments
	Andhra Pradesh Forest Department
1	Mr. Hitesh Malhotra, IFS Principal Chief Conservator of Forests (Wildlife) & Chief Wildlife Warden
2	Mr. A.V. Joseph, IFS Additional Principal Chief Conservator of Forests (Administrations)
3	Mr. B. Varaprasad, Assistant Conservator of Forests (Sur.Cell)
4	Mr. T.V.Subba Reddy, IFS Divisional Forest Officer, Kadapa
5	Mr. K. Prabhakar Rao, IFS Divisional Forest Officer, Prodattur
6	Mr. B.S. Yousuf Sharif, IFS Chief Conservator of Forests, Wildlife Management, Hyderabad
7	Mr. K. Shankar Reddy, IFS Curator, Nehru Zoological Park
8	Mr. Aitanna Forest Guard (Konduru Beat, Kadapa Division)
	Andhra Pradesh Biodiversity Board
9	Dr. R. Hampaiah, Chairman
10	Dr. V.B. Ramanamurthy, Secretary
11	Mr. S. Ashok Kumar, Co-opted Member
	Non-Governmental Organizations
12	Mr. Siraj Thaheer, Member, Birdwatchers Society of Andhra Pradesh (BSAP)
13	Mr. Aasheesh Pittie, Member, BSAP & Trustee, New Ornis Foundation (NOF)
14	Mr. J.V.D. Moorty Executive Member, BSAP
15	Mr. M.S. Kulkarni Executive Member, BSAP
16	Mr. M. Shafaat Ulla, State Coordinator, Indian Bird Conservation Network (IBCN) & Member, BSAP
17	Mr. Rajeev Mathew Trustee, Bio Wild, Hyderabad
18	Ms. Farida Tampal State Coordinator, The World Wide Fund For Nature- India, Andhra Pradesh Chapter (WWF-AP)
19	Ms. Archana Waran Education Officer, WWF-AP
20	Mr. S. Saravanan Education Officer, WWF-AP
21	Mr. Ushodayan Education Officer, Centre For Environmental Education(CEE), Andhra Pradesh
22	Mr. Prabu Trustee, Asian Wildlife Foundation, Kadapa
	Research Institutions
23	Dr. V. Santharam, Teacher, Institute of Birds Studies & Natural History, Rishi Valley, Chittor District, AP.
24	Dr. Narendra Prasad, Senior Principal Scientist, Salim Ali Centre For Ornithology and Natural History, (SACON), Deccan Regional Station, Hyderabad.
25	Mr. Cheranjibi Pattanaik Senior Programme Officer, SACON, Hyderabad.
26	Dr. G. Umapathy, Scientist, The Centre For Cellular And Molecular Biology (CCMB), Hyderabad.
27	Prof. Rhys E. Green, Senior Scientist, University of Cambridge & The Royal Society for The Protection of Birds (RSPB),U.K.
28	Prof. Ken Norris, Director, Centre of Agriculture and Environment Research (CAER), University Of Reading, U.K.
29	Mr. Chirs Bowden International Species Recovery Officer, (RSPB)
30	Dr. Ioannis Vagiatzakis Post-Doctoral Fellow, University of Reading, U.K.
	Organized by Bombay Natural History Society (BNHS)
31	Dr. Asad R. Rahmani Director, BNHS, Mumbai, Maharashtra
32	Dr. P. Jeganathan Project Scientist, BNHS
33	Mr. Anand C. Sekhar Advocacy Officer , BNHS

Appendix 3

List of participants at the second Jerdon's Courser recovery plan workshop held on 5th May 2010.

Sl. No.	**Andhra Pradesh Forest Department**	
	Name	Designation
1	Mr. Hitesh Malhotra, IFS	Principal Chief Conservator of Forests (Wildlife)
2	Mr. K.S.Reddy, IFS	Additional Principal Chief Conservator of Forests (Wildlife)
3	Mr. A.V. Joseph, IFS	Additional Principal Chief Conservator of Forests (CAMPA)
4	Mr. Kanwarjit Singh, IFS	Chief Conservator of Forests (Wildlife)
5	Mr. C.P. Vinod Kumar, IFS	Divisional Forest Officer, Kadapa.
6	Mr. B. Jayachandra Reddy, IFS	Divisional Forest Officer, Proddatur.
7	Mr. N. Bujjaiah, IFS	Divisional Forest Officer, Atmakur.
8	Mr. A. Shankaram.	Assistant Conservator of Forests (Wildlife) Surveillance cell.
9	Mr. B. Vijay Kumar.	Assistant Conservator of Forests (Wildlife).
10	Mr. Thulsi rao.	Assistant Conservator of Forests (Wildlife).
11	Mr. S. Ashok Kumar	Member, State Wildlife Advisory Board & Co-opted Member, Andhra Pradesh Biodiversity Board
	Non-Governmental Organizations	
11	Dr. Asad Rahmani.	Director, Bombay Natural History Society, Mumbai.
12	Mr. Rahul Chavan.	Senior Research Fellow, Bombay Natural History Society, Mumbai.
13	Mr. Sumant Mali.	Research Fellow, Bombay Natural History Society, Mumbai.
14	Dr. P. Jeganathan.	Scientist, Nature Conservation Foundation
15	Dr. S. Narendra Prasad.	Senior Principal Scientist, Salim Ali Centre for Ornithology and Natural History (SACON), Deccan Regional Station, Hyderabad
16	Ms. Farida Tampal	State Coordinator, World Wide Fund for nature, Andhra Pradesh (WWF-AP)
18	Ms. Shivani.	World Wide Fund for nature. (WWF-AP)
19	Mr. Aasheesh Pitte.	Bird watcher's society of Andhra Pradesh (BSAP).
20	Mr. M. Shafaat Ulla	State Coordinator, Indian Bird Conservation Network (IBCN) & Bird watcher's society of Andhra Pradesh (BSAP).

Appendix 4		
Summary of Cost Estimates		
Objectives	**Actions**	**% Funding**
Objective 1: To ensure that the Jerdon's Courser and its existing habitat are well protected and appropriately managed	Habitat management	44.85
Objective 2: To locate potentially suitable habitats outside the known present range of Jerdon's Courser and to determine whether the species occurs there.	Survey and Monitoring & Habitat protection and management	15.76
Objective 3: To undertake research to support conservation efforts and monitoring to track future population and habitat changes.	Field research & Training programmes	21.82
Objective 4: To raise awareness at local, state and national level of the conservation issues surrounding Jerdon's Courser and ensure a positive impact on the conservation of Jerdon's Courser from all levels.	Awareness	14.55
Administration		3.03

Appendix 5

Photographic records of consultation and discussions with different stake holders at various level on the conservation of the Jerdon's Courser and its habitat.

Jerdon's Courser recovery plan workshop participants (29th & 30th June 2008)

Meeting and discussion with staff of Kadapa and Prodattur Forest Division on the conservation of the Jerdon's Courser and its habitat on 30th August 2003 at Kadapa

Joint discussion between Bombay Natural History Society, Andhra Pradesh Irrigation, Revenue and Forest Departments on the realignment of the Telug-Ganga Canal around the Sri Lankamaleswara Wildlife Sanctuary, Cuddapah. Meeting held on 15th December 2007 at Hyderabad

Address by Sri. Hitesh Malhotra, I.F.S., PCCF(WL) & CWLW, Andhra Pradesh Forest Department, on the role of Forest Department in conserving the Jerdon's Courser at Species Recovery Plan workshop held on 30th July, 2008, at Hyderabad

Bombay Natural History Society field team interacting with local people residing in villages around the Sri Lankamaleswara Wildlife Sanctuary, Kadapa District Andhra Pradesh on the importance of the Jerdon's Courser and sustainable use of scrub jungle

Local people interacting with Mr. Aittana, Forest Guard (Andhra Pradesh Forest Department) who was instrumental in rediscovering the Jerdon's Courser

Final workshop on Jerdon's Courser Species Recovery Plan arranged at PCCF's Office in Hyderabad on 5th of May 2010

Schools and other educational institutions are very important, thus conducting awareness programmes at this level is vital for the conservation of the Jerdon's Courser

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Notes


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