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Observations of Jerdon's Babbler *Chrysomma altirostre* and Rufous-vented Prinia *Prinia burnesii* in Punjab and North-West Frontier Provinces, Pakistan

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The conservation status, distribution and habitat of two threatened bird species, Jerdon's Babbler *Chrysomma altirostre* and Rufous-vented Prinia *Prinia burnesii,* with special reference to Pakistan, are summarized. An account of observations of these relatively little-known species during a survey in Punjab and North-West Frontier Province, Pakistan, in February 1996, is given. Jerdon's Babbler was observed 250 km further north along the Indus floodplain than the most northerly locality previously known in Pakistan. The threats to the remaining tall grassland habitat occupied by these species are discussed. A list is provided of 144 bird species observed during the survey, including two additional globally threatened species: Ferruginous Pochard *Aythya nyroca* and Black-bellied Tern *Sterna acuticauda*.

INTRODUCTION

From 15-19 February 1996 apparently suitable tracts of tall grassland habitat along the Indus floodplain in Punjab and North-West Frontier Province (NWFP), Pakistan, were searched for two threatened bird species, Jerdon's Babbler *Chrysomma altirostre* and Rufous-vented Prinia *Prinia burnesii*. The primary aim of the visit was to establish the presence of populations of Jerdon's Babbler beyond the northern limits of its known range in Pakistan and confirm its continued persistence at some sites, given its 'Vulnerable' threat status and the paucity of records from the northern part of its Pakistani range.

The survey team consisted of five ornithologists: Chris Barker, Nigel Bean, Raf Drijvers, PD and DS; and a driver/guide, Muhammad Ramzan, from the Himalayan Jungle Project, Islamabad.

CONSERVATION STATUS, DISTRIBUTION AND HABITAT

JERDON'S BABBLER *Chrysomma altirostre*

Conservation status

Jerdon's Babbler is listed as 'Vulnerable' in *Birds to Watch 2* (Collar *et al.* 1994). In Pakistan this species was considered very rare or local prior to 1980, and in the 1980s it was deemed to be even rarer and more localized (Roberts 1991). The subspecies *C. altirostre scindicum* is, in particular, considered to be under threat from habitat destruction (Gaston 1984), and it was listed by Roberts (1992) as 'Rare'.

Distribution

Jerdon's Babbler is represented by three subspecies which occur in three localized disjunct populations:

Chrysomma altirostre scindicum (Harington) is confined to the River Indus and its tributaries in Pakistan (see Figure 1). The type specimen is from Mangrani, between Sukkur and Shikarpur in Sind province, *fide* Ticehurst 1922 (Deignan 1964). In Pakistan, Jerdon's Babbler is known from three core areas:

i) South-east Sind in the East Narra, Sanghar and Tharparkar districts, where K. Eates observed them in the 1930s (Roberts 1992).
ii) North and central Sind in the districts of Shikarpur, Sukkur, Larkana, Khairpur, Nawabshah and Dadu. It probably occurs from about Sukkur city (close to where the type specimen was collected) in the north, southwards to the town of Nawabshah. It is from this area of Sind that most recent records come, especially from the site alongside the Rohri canal just south of Khairpur City. K. Eates recorded them at Duber, Sukkur district in the 1930s (Roberts 1992).
iii) South-west Punjab north to southern NWFP in the districts of Dera Ghazi Khan, Muzaffargarh and Mianwali (Punjab), and Dera Ismail Khan (NWFP). The only records of Jerdon's Babbler that Roberts lists from Punjab are old observations by H. Waite between 1932 and 1943. These were from three sites: near Jampur in Dera Ghazi Khan district (1932 and 1937), Khanwah in Muzaffargarh district (1937) and near Bhamb in Mianwali district (1943).

Recently, however, Jerdon's Babbler has been recorded near Taunsa Barrage (Punjab) in February 1996 (M. Pyhälä pers. comm. 1996). Taunsa Barrage, situated on the Indus in central-west Punjab, is about as far north as the range indicated in Roberts (1992). Pyhälä also reported the presence of Jerdon's Babbler 150 km further north, in areas close to Dera Ismail Khan town, NWFP, where Juha Kylänpää had observed the species.

The authors (February 1996) observed birds at two sites on the west shores of the Indus just south-east of

Figure 1: Distribution of Jerdon's Babbler.

Dera Ismail Khan. Jerdon's Babblers were also seen 100 km north of Dera Ismail Khan, at Chashma Barrage, currently the most northerly locality known in Pakistan for this species (see Discussion).

C. a. griseigulare (Hume) is found from the northern Bengal Duars east in the plains of the Brahmaputra to the plains of Cachar (Assam) and Nagaland; Bangladesh in the Surma Valley and adjacent perennially flooded depressions, and plains of the Chittagong region (Ripley 1982). Skins in the BMNH collection come from the Bhutan duars (Assam/West Bengal); Buxa Duars (West Bengal); Bishnath Plain, Buri Dihing and the Burroi River (Assam). An apparently disjunct population occurs in Kachin State, north-eastern Myanmar (Burma) (Ali and Ripley 1983). A skin in the BMNH is recorded as coming from Bhamo (24°10'N 97°30'E) in Kachin State. Small numbers have recently been recorded in Royal Chitwan National Park, Nepal. It was tentatively recorded by H. S. Baral in 1989 and confirmed in 1990 by H. S. Baral and J. C. Eames. The species was last seen there in 1993, despite attempts in 1996 to relocate it (H. S. Baral pers. comm. 1996). Two were observed at Sukila Phanta, west Nepal, on 4 May 1998 (Giri 1998).

C. a. altirostre (Jerdon) is known from the Irrawaddy-Sittang plains of south-central Burma. This race was considered perhaps to be extinct by Deignan (1964) as it had not been reported since 1941. It was formerly considered to be locally common (Smythies 1986). There are no recent records but it may still be present (C. Robson pers. comm. 1996). The type specimen came from an island in the Irrawaddy off Thayetmyo, *fide* Sharpe 1883 (Deignan 1964).

Examination of skins at the Natural History Museum (BMNH), Tring, revealed that *C. a. griseigulare* differs from *C. a. scindicum* and *C. a. altirostre* (which are both very similar in appearance) in having rich ferruginous-brown upperparts, including crown, uppertail-coverts and tail sides, compared with dull olive-buff upperparts exhibited by *C. a. scindicum* and *C. a. altirostre*; rufous rather than dull greyish ear-coverts; richer, deeper buff underparts with the colour extending from upper breast to undertail-coverts; and a noticeably greyish tone to the chin and throat.

Habitat

Jerdon's Babbler is sedentary and in Pakistan it inhabits tall grassland, comprising *Phragmites karka* reedbeds and *Saccharum benghalense* (= *S. munja*) reed grass in riverine tracts subject to annual monsoon flooding (Roberts 1992). Observations by the authors indicate that *Typha angusta* (bulrush/reedmace), is also an important component of the plant community in which Jerdon's Babbler occurs. The closely related Yellow-eyed Babbler *Chrysomma sinense* and the Rufous-vented Prinia also utilize this habitat (pers. obs., Roberts 1992), but

Roberts noted that Jerdon's Babbler prefers extensive areas of very thick reed cover and is much less adapted to semi-open habitats with shorter grass and scattered bushes than Yellow-eyed Babbler.

Ali and Ripley (1987) stated that *C. altirostre scindicum* 'appears to be confined to the "khan" grass (*Saccharum arundinaceum*) jungle'. *Saccharum arundinaceum* (a synonym of *S. benghalense*) occurs throughout the range of *C. altirostre scindicum* in Punjab, NWFP and Sind (S. Renvoize pers. comm. 1996). *S. benghalense* is common on alluvial soils in arid zones in the north and north-west of the Indian subcontinent (Dabadghao and Shankarnarayan 1973). Another species of *Saccharum*, *S. spontaneum*, also present in Pakistan and widely distributed over much of the subcontinent, occurs on sandy riverbeds, banks of rivers and watercourses (Dabadghao and Shankarnarayan 1973). It is possibly a component of the plant community in habitat occupied by *C. a. scindicum* in some localities. Likewise in Pakistan, *Imperata cylindrica*, another tall grass of swamps and seasonal inundation zones found in association with *P. karka*, may be important. *I. cylindrica* is widely distributed in northern India in the terai, the plains of Punjab and western region, the Gangetic Plains, Brahmaputra Valley, extending to Manipur (Dabadghao and Shankarnarayan 1973).

In the north-east of the Indian subcontinent, *C. a. griseigulare* also inhabits tall *Phragmites-Saccharum* type riverine grassland. Here again, *S. benghalense*, *S. spontaneum* (and perhaps *S. procerum*, a species not present in Pakistan and mostly confined to high rainfall zones in Bengal and Assam: Dabadghao and Shankarnarayan 1973) and *Imperata cylindrica* are likely to be important component species of Jerdon's Babbler habitat, along with several other tall, perennial, coarse grass species. Ali and Ripley (1987) stated that *C. a. griseigulare* inhabits 'the great expanses of ekra or elephant grass, reeds and vegetation along rivers', presumably referring to tall grassland communities comprising principally *Saccharum* spp., *Imperata* and *Phragmites*. In Royal Chitwan National Park, Nepal, Jerdon's Babbler was observed in *Saccharum benghalense* dominated grassland with another unidentified *Saccharum* species also present (Baral and Eames 1991).

C. altirostre altirostre of the Irrawaddy-Sittang plains was recorded as occurring in grasslands (Deignan 1964), presumably similar tall riverine grassland to that in which the other two races are found.

Rufous-vented Prinia *Prinia burnesii*

Conservation Status

The Rufous-vented Prinia is listed as 'Vulnerable' in *Birds to Watch 2* (Collar *et al.* 1994). The eastern population was formerly locally common (Ali and Ripley 1987) but there are few recently published records (Collar *et al.* 1994). In Pakistan, Roberts (1992) gave its status as 'Frequent', noting that it was locally

Figure 2: Distribution of Rufous-vented Prinia.

common or abundant in its restricted habitat in the Punjab and northern Sind, but much less common in southern Sind.

Distribution

The Rufous-vented Prinia occurs in two disjunct populations:

- The subspecies *P. b. burnesii* (Blyth) occurs along the River Indus and its tributaries in Pakistan (Roberts 1992) and adjacent north-west India (Collar *et al.* 1994). In Pakistan it is known from a considerably wider area than Jerdon's Babbler, spanning much of Punjab along the Indus, Jhelum, Chenab, Ravi and Sutlej rivers, and extending down the Indus into southern Sind (Figure 2). In the northern part of its range it occurs around the town of Dera Ismail Khan on the banks of the Indus, north to Chashma Barrage, Dera Ismail Khan District, NWFP.
- *P. b. cinerascens* (Walden) is distributed in north-east India along the plains of the Brahmaputra in Assam and Bangladesh, and some of the tributaries of the Ganges in Bangladesh west to Bihar (Ripley 1982).

Examination of skins at the BMNH revealed that *P. b. cinerascens* differs from the nominate race in being slightly smaller and shorter-tailed; having olive-grey upperparts with diffuse darker streaking, compared with warm rufous-brown upperparts, heavily streaked dark on the crown, nape, mantle and back in the nominate; less pronounced supercilium and eye-ring; cold greyish-white underparts, lacking streaking on breast and flanks (warm buff-brown with darker streaking in the nominate); and pale buffish-grey undertail-coverts (bright cinnamon-rufous in the nominate). Bare part coloration of the two races also differs: *P. b. cinerascens* has a horny-black bill, with a bluish tinge to the lower mandible, compared with a paler horn colour with straw-coloured tip and lower mandible in the nominate; the legs are brownish, plumbeous or slaty-brown rather than flesh-coloured. These differences appear to be considerable and warrant further taxonomic research.

Habitat

The Rufous-vented Prinia is considered a sedentary species (Roberts 1992). Ali and Ripley (1987) stated that *P. b. burnesii* inhabits long sarkhan grass (*Saccharum*) in pure stands or where mixed with acacias and tamarisks (*Tamarix dioica*), mainly in the vicinity of large rivers and their tributaries. Roberts (1992) concurred with this, describing its favoured habitat as including large expanses of *Saccharum munja* and *S. spontaneum* grass, dotted with *T. dioica* in regions subject to seasonal inundation, as well as extensive reedbeds of mixed *Phragmites karka* and *Typha angusta*. This survey similarly found the species in areas of *Saccharum* (mostly degraded) and also in areas dominated by *P. karka* and *T. angusta*. Roberts (1992) noted that this prinia has spread away from the Indus to the fringes of man-made, permanent lakes and seepage zones around irrigation headworks.

OBSERVATIONS OF JERDON'S BABBLER AND RUFOUS-VENTED PRINIA IN PUNJAB AND NWFP

Sites at Chashma Barrage (NWFP), Dera Ismail Khan (NWFP), Dhup Shamali (NWFP) and Taunsa Barrage (Punjab) were visited (Figure 1). The time spent in each area varied from about two to six hours, during which the five members of the survey team looked primarily for Jerdon's Babbler and Rufous-vented Prinia. The areas visited held the most extensive tracts of habitat that could be readily accessed. Most of these localities seemed degraded due to cutting, burning, and overgrazing by domestic livestock. A brief habitat description was taken at each of these localities. Other bird species present were also recorded, a list of which is given in the Appendix.

CHASHMA BARRAGE 32°50'N 71°20'E

Chasma Barrage is an extensive wetland of great importance to wildfowl and other wetland birds, situated about 100 km north of Dera Ismail Khan. There are large areas of open water (several kilometres square), substantial tracts of *P. karka* and *T. angusta* swamp, and tall, dry (at the time of survey) *S. benghalense* and/or *spontaneum* grassland, on both the north and south sides of the barrage. The locality surveyed on 15 and 19 February, was 1 km west of Chashma Barrage. It comprised at least 100 ha of *Typha*-dominated swamp with stands of *Phragmites* in the wettest areas, and *Saccharum* on the surrounding drier, often desiccated substrate. Some of the *Typha* on drier ground and much of the *Saccharum* had been cut, leaving large patches of 'stubble'. Suitable-looking habitat that was not examined appeared to extend for some distance south, along the west side of the Indus. There was also a large island of what appeared to be relatively undisturbed *Typha*-dominated swamp in the middle of the river with some similar-looking habitat along the western shore, north of the barrage.

Jerdon's Babblers were seen twice on 19 February, with one flock of three or four, and another of at least five. Both flocks were in tall *Phragmites* (up to 4.5 m) and *Typha* (up to 3 m), adjoining stretches of open water. The second flock was observed foraging in stands of *P. karka*; a bird would perch almost perpendicular to the more-or-less vertical reed stem, grasping a leaf base with its bill and vigorously ripping it down the long axis of the leaf blade and adjoining upper sheath, presumably to expose invertebrate prey items. This cracking of dry leaves, although quite quiet, was audible at a distance of about 30 m.

At least five Rufous-vented Prinias were observed (also on 19 February), in a mosaic of cut and uncut *Typha* and *Saccharum* on a dry, silty, alluvial substrate. One bird was seen carrying nest material (grass-like vegetation), conforming with Roberts's observations (1992) that this species commences nest-building from mid-February onwards.

DHUP SHUMALI

Dhup Shumali is situated to the west of the Indus, about 25 km north of Dera Ismail Khan. This site was visited

from 12h00 to 18h00 on 18 February. The site comprised a fairly bird-rich *T. angusta* dominated freshwater swamp with some *P. karka,* and surrounding degraded, dry *Saccharum* grassland, of about 1 km² in extent. Much of the *Typha* and *Saccharum* had been recently cut and burnt, with some cutting and burning ongoing at the time of our visit. The site is probably subject to seasonal monsoonal flooding.

Up to 10 Rufous-vented Prinias were seen in *Typha*- and *Saccharum*-dominated areas.

DERA ISMAIL KHAN 31°45'N 70°55'E

Three different sites were looked at on 17-18 February, all to the south-east of the town, close to the bridge over the Indus.

i) On the west shore of the Indus, approximately 2 km north of the bridge.

This locality covered an area of about 50 ha dominated by *T. angusta* with some *P. karka* and *Saccharum*. Much of the *Typha* had been recently cut and burnt, taller stands mostly only remaining in wetter areas.

A flock of between 15 and 20 Jerdon's Babblers was observed for half an hour around midday. They were quite vocal and gleaned for food in *Phragmites* in the same fashion as those at Chashma. Two Rufous-vented Prinias, probably a pair, were observed. These birds were very tame, coming within 50 cm of the observers, creeping with low, rapid, short hops across the ground amongst tussocks of *Saccharum* and dead *Typha* debris. Both birds occasionally sang and frequently gave a buzzing nasal *zee-zee* contact call.

ii) Approximately 2 km west of the bridge over the Indus, along the southern edge of the main road.

This site comprised an area of about 20 ha of uncut *P. karka* (up to 4.5 m in height) and *T. angusta,* with some *Saccharum* on a dry, alluvial silty-sandy substrate. This site is undoubtedly subject to seasonal flooding. Much of the ground was covered in dead plant debris, especially the broken leaves and stems of *T. angusta*. The area was heavily grazed by goats, cattle and domestic water buffalo. Adjacent areas had been cut and, at the time of our visit, some substantial areas of tall riverine grassland were being burnt approximately 1 km down stream. There were also signs that some former areas of riverine grassland had been reclaimed and recently put under cultivation.

A flock of at least four Jerdon's Babblers was seen in uncut *Phragmites* and *Typha*. At least three pairs of Rufous-vented Prinias were observed in patches of cut *Typha* and tussocks of *Saccharum*.

iii) Immediately north of the main road, just east of the bridge over the Indus south-east of Dera Ismail Khan.

A degraded grassland area of at least 25 ha dominated by *Saccharum* on a dry, loose, alluvial sand/silt substrate. Approximately 99% of this vegetation comprised tussocks of *Saccharum* with <1% *T. angusta* . Much of the *Saccharum* had been recently cut and some also burnt, Typically, the tussocks were from 1 to 1.5 m tall (depending on the height of regrowth) and between 20 to 40 cm in basal diameter. The vegetation cover of this site was estimated to be about 25% and, in addition to cutting and burning, was subject to intensive grazing by domestic cattle and goats.

No Jerdon's Babblers were seen and the habitat appeared unsuitable, i.e. there was almost no tall *Typha*, no *Phragmites* and the area was greatly disturbed. About ten Rufous-vented Prinias (singles and pairs) were observed, mostly in a 10 ha patch of uncut *Saccharum*.

TAUNSA BARRAGE 30°45'N 70°45'E

Two sites in close proximity to each other, about 1 km west of the barrage, were visited on 16 February. There appeared to be little if any suitable habitat for Jerdon's Babbler or Rufous-vented Prinia on the east shore of the Indus within sight of the barrage. Likewise, the small wildlife reserve situated just to the north-east of the barrage did not appear to support any suitable habitat.

The first site was immediately south of the barrage approach road, 1 km to the west of the barrage. No Jerdon's Babblers or Rufous-vented Prinias were seen but the habitat appeared to be unsuitable for both, having been extensively cut with only a few patches (amounting to less than 50 m²) of taller *Typha* and *Saccharum* remaining.

The second site was 500 m north of the barrage approach road, and extended westwards from the west bank of the Indus. It consisted of approximately 200 ha of *T. angusta*-dominated swamp, with some *P. karka* and very occasional *Saccharum* tussocks. Some of the *Typha* had been patchily cut, but much remained tall and intact.

A single Jerdon's Babbler was seen on the fringe of a dense stand of *T. angusta*. No Rufous-vented Prinias were seen although the area appeared to support suitable habitat. The visit was made in the early to mid-afternoon when it was hot and windy, and most bird activity was low. It is quite possible that the prinia was present but overlooked.

VOCALIZATIONS

Jerdon's Babbler

During our observations song and two types of call were heard:

i) Contact or alarm calls, consisting of a short, slightly rasping and often repeated *tsik* or *ts-ts-tsik*, occasionally *ts-ts-ts-tsik tew*, the last note rather plaintive in tone.
ii) A song comprising a series of four to eight notes, starting rapidly and ending more slowly, plaintive and falling in tone, e.g. *tew-tew-tew-tew chew*, the final note often more drawn out. The singing bird that was observed was in an upright posture with head held slightly up, perched on a *P. karka* stem.

The song is usually delivered from the tops of reeds in the early morning and evening, and some phrases are similar to those of Yellow-eyed Babbler *C. sinense* (Roberts 1992). See Roberts (1992) for a fuller treatment of vocalizations.

Rufous-vented Prinia

During our observations the following song and calls were heard:

i) Calls included a scolding or hissing *tsch-tsch-tsch-tsch-tsch-tsch-tsch-tsch* or *zeez-eez-eez-eez-eez-eez-eez*, and a single, distinctive, rather drawn-out nasal rising then falling *skeeeooo*.

ii) The song consists of a loud warbling, often with a scratchy quality, reminiscent of a Dunnock *Prunella modularis*. It consists of a regularly repeated complex phrase lasting 2-4 seconds and, on one occasion, was heard delivered in duet, the presumed female giving a slightly nasal or hissing *tuk-tuk-tuk-tuk-tuk-tuk-tuk-tuk-tuk tchuk tchuk tchuk*, falling in tone, in unison with the male's song phrase. These vocalizations conform well with the species' repertoire given in Roberts (1992).

DISCUSSION

Habitat preferences of Jerdon's Babbler and Rufous-vented Prinia

The habitat of Jerdon's Babbler is generally described as reedbeds *Phragmites karka* and seasonally inundated grassland *Saccharum* near rivers. However, neither Ali and Ripley (1987) nor Roberts (1992), mentioned *Typha* in their habitat descriptions, although Roberts (1991) included *T. angusta* in his list of typical plant species of swamps and seasonal inundations in Pakistan. At all sites where babblers where observed, *T. angusta* was a frequently occurring, and sometimes the most dominant, plant species. From our limited observations, Jerdon's Babbler appears to favour marshland with tall, dense stands of *P. karka* (culms up to 4 m, up to 4.5 m including panicle) and *T. angusta* (up to 3 m). They were also observed in tall, marginal vegetation alongside water (growing on a dry alluvial substrate at the time of the survey but probably subject to annual monsoonal flooding). These areas were again dominated by *T. angusta* and *P. karka,* with tussocks of *Saccharum* in drier areas. Babblers were never observed in shorter, degraded *Saccharum* grassland and appeared to be tied to the tall *Phragmites-Saccharum-Typha* community.

The habitat occupied by *C. a. griseigulare* in north-east India is apparently similar. In this region the tall grassland in the terai area lying in the foothills of the Himalayas is broadly described by Dabadghao and Shankarnarayan (1973), as a *Phragmites-Saccharum* type due to the dominance of *P. karka* and constant association of *S. benghalense* and *S. spontaneum*, with other tall, coarse grasses sometimes present such as *Narenga porphyrocoma, Arundo donax, Imperata cylindrica, Themeda arundinacea* and *Vetiveria zizanioides.* In more permanently wet swampy areas *Typha* also occurs (DS pers. obs., N. Peet pers. comm. 1996). The grassland which predominates throughout the Gangetic Plain and Brahmaputra Valley west into the plains of (Indian) Punjab is described as a *Phragmites-Saccharum-Imperata* type and the tall grassland community here is represented by species including *Desmostachya bipinnata, I. cylindrica, P. karka, S. benghalense and S. spontaneum* (Dabadghao and Shankarnarayan 1973).

Rufous-vented Prinia was found in similar habitat to that of Jerdon's Babbler but was also frequently encountered in much sparser, shorter (1-1.5 m) *Saccharum* dominated areas. Much of this habitat was extensively degraded due to cutting and burning, and overgrazing. The habitat in which we observed the species agrees with that described by Roberts (1992) and Ali and Ripley (1987). We also reached the same broad conclusion that it is less specific in its habitat preferences than Jerdon's Babbler. Our observations suggest that Rufous-vented Prinia is fairly common in suitable habitat between Taunsa and Chashma Barrages.

Threats to remaining habitat

The human population of Pakistan is increasing rapidly. A census in 1972 estimated the population to be 65 million; by 1986 this had risen to almost 98 million (Roberts 1991) and in 1995 was estimated to be 122,802,000 (*Times atlas of the world* 1995). This increase has led to increasing demands upon the land, and a loss of natural and semi-natural habitat. The extent of the remaining habitat for Jerdon's Babbler and Rufous-vented Prinia in Pakistan is unknown. It seems likely that suitable, albeit highly fragmented, habitat exists along most of the length of both shores of the Indus between Taunsa and Chashma Barrages. However, it was not possible to assess how much potential habitat remained between these localities as the roads ran mostly through cultivated land some distance from the river. Much tall grassland and swamp along the Indus has been lost to agriculture, and remaining grasslands are subject to extensive cutting, burning and grazing, as observed between Taunsa and Chashma Barrages. The grasslands are cut to provide fodder for livestock, building materials, e.g. thatch for roofs and 'wattle' for wattle and daub walls, weaving materials for baskets, paper-making and many other uses. Fire is used to encourage the growth of fresh leaves of species such as *S. benghalense* and *I. cylindrica*. Fire burns above-ground leaves and stems but the underground perennating organs are stimulated to produce fresh growth. Cattle and water buffalo favour the tender young leaves of *S. benghalense* and the young shoots of *I. cylindrica* that appear after annual burning, but older leaves are infrequently eaten (Dabadghao and Shankarnarayan 1973).

Heavy grazing, annual fires, land drainage and flood control induce drier conditions and corresponding changes in the flora. *T. angusta* and *P. karka* require free-standing water throughout most of the year to flourish and therefore cannot withstand drainage. *P. karka* is the first grass species to disappear under the impact of cutting and burning. Studies of the grasslands of the terai, under the influence of regular burning and cutting, have shown that species such as *S. benghalense* and *I. cylindrica* become dominant (Dabadghao and Shankarnarayan 1973). However, they may become depauperate in form and, as indicated, this degraded habitat appears to be of little value to Jerdon's Babbler. As soil conditions become drier still, only *Saccharum* will persist and if subjected to continued overgrazing and burning this will also eventually disappear.

In his description of the habitat of *C. altirostre scindicum*, Waite (1933) stated that 'to suit there must be a regular "sea of khan" (*Saccharum*), preferably not less than six feet (180 cm) high. If the grass is eaten down by cattle or grows in separate clumps one is not

likely to come across it.' We came across no such 'seas of khan'. The areas of *Saccharum* that we came across were mostly heavily degraded, the grass generally growing in tussocks (mostly recently cut and/or burnt and subject to grazing) with large patches of bare ground. Our observations may be a sad indictment as to the present state of much of the former tall grassland along the Indus.

The construction of a succession of barrages across the Indus and its tributaries, to control the annual floodwaters, has also led to the elimination of much swamp habitat. However, this has been somewhat compensated for by a huge system of irrigation canals and large reservoirs upstream of the barrages, e.g. at Chashma. The major canals are unlined and new swamps and wetlands have developed (Roberts 1991). The Rufous-vented Prinia is one species that has spread away from the Indus and colonized the fringes of these man-made lakes and swamps.

The extensive *Phragmites* and *Typha* beds, and stands of *Saccharum* that have developed around the major barrages are undoubtedly important refuges for wetland fauna and flora and may prove critical for the survival of Jerdon's Babbler and Rufous-vented Prinia in the longterm. A continuation of the processes leading to further habitat loss poses the greatest threat to the survival of these two species in Pakistan and probably throughout their world ranges.

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REFERENCES

Ali, S. and Ripley, S. D. (1987) *Compact handbook of the birds of India and Pakistan.* Second edition. Oxford. Oxford University Press.

Baral, H. S. and Eames, J. C. (1991) Jerdon's Babbler *Moupinia altirostris*: a new species for Nepal. *Forktail* 6: 85-87.

Baral, H. S, Inskipp, C., Inskipp, T. P. and Regmi, U. R. (1996) *Threatened birds of Nepal.* Kathmandu: BCN & DNPWC.

Collar, N. J., Crosby, M. J. and Stattersfield, A. J. (1994) *Birds to watch 2: the world list of threatened birds.* Cambridge: BirdLife International.

Dabadghao, P. M. and Shankarnarayan, K. A. (1973) *The grass cover of India.* New Delhi: Indian Council of Agricultural Research.

Deignan, H. G. (1964) Subfamily Timaliinae. Pp. 240-429 in E. Mayr and R. A. Paynter, Jr, eds. *Check-list of birds of the world,* 10. Cambridge, Massachusetts: Museum of Comparative Zoology.

Gaston, A. J. (1984) Is habitat destruction in India and Pakistan beginning to affect the status of endemic passerine birds? *J. Bombay Nat. Hist. Soc.* 81: 636-641.

Giri, T. (1998) Additional sightings! *Danphe* 7(1/2): 11-12.

Ripley, S. D. (1982) *A synopsis of the birds of India and Pakistan.* Second edition. Bombay: Bombay Natural History Society.

Roberts, T. J. (1991) *The birds of Pakistan*, 1. Karachi: Oxford University Press.

Roberts, T. J. (1992) *The birds of Pakistan*, 2. Karachi: Oxford University Press.

Smythies, B. E. (1986) *The birds of Burma.* Third edition. Liss, Hants and Pickering, Ontario: Nimrod Press and Silvio Mattacchione.

The Times atlas of the world (1995) Comprehensive (seventh) edition. London: Times Books.

Waite, H. W. (1933) Occurrence of the Sind Babbler (*Chrysomma altirostris scindicus*, Harington) in the Dera Ghazi Khan District of the Punjab. *J. Bombay Nat. Hist. Soc.* 36: 748.

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APPENDIX

Birds observed at sites visited on the Indus floodplain, 15-19 February 1996

Species	Chashma Barrage	Dera Ismail Khan	Dhup Shumali	Taunsa Barrage
Ruddy Shelduck *Tadorna ferruginea*		X	X	
Gadwall *Anas strepera*	X	X		X
Eurasian Wigeon *Anas penelope*	X			X
Common Teal *Anas crecca*	X	X		
Mallard *Anas platyrhynchos*	X	X		X
Northern Pintail *Anas acuta*	X			
Northern Shoveler *Anas clypeata*	X			X
Red-crested Pochard *Netta rufina*	X			
Common Pochard *Aythya ferina*	X			X
Ferruginous Pochard *Aythya nyroca* (VU)	X			
Tufted Duck *Aythya fuligula*	X			X
Black-rumped Flameback *Dinopium benghalense*	X			X
Common Hoopoe *Upupa epops*		X	X	X
Indian Roller *Coracias benghalensis*	X	X	X	X
Common Kingfisher *Alcedo atthis*		X	X	
White-throated Kingfisher *Halcyon smyrnensis*	X	X	X	X
Pied Kingfisher *Ceryle rudis*	X	X	X	X
Green Bee-eater *Merops orientalis*			X	
Greater Coucal *Centropus sinensis*	X	X	X	X
Rose-ringed Parakeet *Psittacula krameri*	X	X	X	X
Spotted Owlet *Athene brama*		X		X
Long-eared Owl *Asio otus*			X	
Laughing Dove *Streptopelia senegalensis*		X		X
Eurasian Collared Dove *Streptopelia decaocto*	X	X	X	X
Water Rail *Rallus aquaticus*		X	X	
White-breasted Waterhen *Amaurornis phoenicurus*	X			X
Ruddy-breasted Crake *Porzana fusca*		X	X	
Purple Swamphen *Porphyrio porphyrio*		X	X	X
Common Moorhen *Gallinula chloropus*	X	X	X	X
Common Coot *Fulica atra*	X	X	X	X
Common Snipe *Gallinago gallinago*		X	X	X
Jack Snipe *Lymnocryptes minimus*		X	X	X
Spotted Redshank *Tringa erythropus*		X		
Common Redshank *Tringa totanus*		X		X
Common Greenshank *Tringa nebularia*	X	X	X	X
Green Sandpiper *Tringa ochropus*	X	X	X	X
Wood Sandpiper *Tringa glareola*	X			
Little Stint *Calidris minuta*	X			
Temminck's Stint *Calidris temminckii*	X	X		X
Ruff *Philomachus pugnax*	X			
Greater Painted-snipe *Rostratula benghalensis*			X	
Black-winged Stilt *Himantopus himantopus*	X	X	X	
Little Ringed Plover *Charadrius dubius*	X			
Northern Lapwing *Vanellus vanellus*	X	X		X
Red-wattled Lapwing *Vanellus indicus*	X	X	X	X
White-tailed Lapwing *Vanellus leucurus*	X	X	X	X
Yellow-legged Gull *Larus cachinnans*	X	X		
Pallas's Gull *Larus ichthyaetus*	X			
Brown-headed Gull *Larus brunnicephalus*	X			
Black-headed Gull *Larus ridibundus*	X	X		
River Tern *Sterna aurantia*	X	X	X	X
Black-bellied Tern *Sterna acuticauda* (VU)	X	X	X	X
Whiskered Tern *Chlidonias hybridus*	X			
Osprey *Pandion haliaetus*	X			
Black-shouldered Kite *Elanus caeruleus*			X	
Black Kite *Milvus migrans*	X	X	X	X
White-rumped Vulture *Gyps bengalensis*	X		X	X

Species	Chashma Barrage	Dera Ismail Khan	Dhup Shumali	Taunsa Barrage
Eurasian Griffon *Gyps fulvus*				X
Eurasian Marsh Harrier *Circus aeruginosus*	X	X	X	X
Hen Harrier *Circus cyaneus*	X			
Shikra *Accipiter badius*				X
Long-legged Buzzard *Buteo rufinus*			X	
Greater Spotted Eagle *Aquila clanga*				X
Steppe Eagle *Aquila nipalensis*	X	X	X	X
Common Kestrel *Falco tinnunculus*			X	
Little Grebe *Tachybaptus ruficollis*	X	X	X	X
Great Crested Grebe *Podiceps cristatus*	X			
Black-necked Grebe *Podiceps nigricollis*	X			
Little Cormorant *Phalacrocorax niger*	X	X	X	X
Indian Cormorant *Phalacrocorax fuscicollis*	X			X
Great Cormorant *Phalacrocorax carbo*	X	X	X	X
Little Egret *Egretta garzetta*	X	X	X	X
Grey Heron *Ardea cinerea*	X	X	X	X
Purple Heron *Ardea purpurea*	X	X	X	X
Great Egret *Casmerodius albus*	X	X	X	X
Intermediate Egret *Mesophoyx intermedia*	X		X	X
Cattle Egret *Bubulcus ibis*	X	X		
Indian Pond Heron *Ardeola grayii*	X	X	X	X
Black-crowned Night Heron *Nycticorax nycticorax*	X	X	X	X
Yellow Bittern *Ixobrychus sinensis*		X	X	
Black Bittern *Dupetor flavicollis*		X		
Great Bittern *Botaurus stellaris*		X	X	
Eurasian Spoonbill *Platalea leucorodia*				X
Bay-backed Shrike *Lanius vittatus*				X
Long-tailed Shrike *Lanius schach*	X	X	X	X
Rufous Treepie *Dendrocitta vagabunda*	X			
House Crow *Corvus splendens*	X	X	X	
Common Raven *Corvus corax*				X
White-browed Fantail *Rhipidura aureola*		X	X	X
Black Drongo *Dicrurus macrocercus*		X	X	X
Common Woodshrike *Tephrodornis pondicerianus*	X			
Red-throated Flycatcher *Ficedula parva*			X	
Bluethroat *Luscinia svecica*	X	X	X	X
Black Redstart *Phoenicurus ochruros*			X	X
White-tailed Stonechat *Saxicola leucura*	X	X	X	X
Pied Bushchat *Saxicola caprata*	X	X	X	X
Variable Wheatear *Oenanthe picata*	X			X
Desert Wheatear *Oenanthe deserti*				X
Common Starling *Sturnus vulgaris*	X	X	X	
Common Myna *Acridotheres tristis*	X	X	X	X
Bank Myna *Acridotheres ginginianus*	X	X	X	X
White-crowned Penduline Tit *Remiz coronatus*		X		
Great Tit *Parus major*			X	
Sand/Pale Martin *Riparia riparia/diluta*	X			
Plain Martin *Riparia paludicola*	X	X	X	X
Barn Swallow *Hirundo rustica*	X	X	X	X
White-eared Bulbul *Pycnonotus leucotis*		X		X
Red-vented Bulbul *Pycnonotus cafer*				
Zitting Cisticola *Cisticola juncidis*			X	
Rufous-vented Prinia *Prinia burnesii*	X	X	X	
Graceful Prinia *Prinia gracilis*		X		
Yellow-bellied Prinia *Prinia flaviventris*	X	X	X	X
Plain Prinia *Prinia inornata*	X	X	X	X
Oriental White-eye *Zosterops palpebrosus*		X		
Cetti's Bush Warbler *Cettia cetti*	X	X	X	X
Moustached Warbler *Acrocephalus melanopogon*	X	X	X	X
Booted Warbler *Hippolais caligata*			X	
Common Chiffchaff *Phylloscopus collybita*	X	X	X	X

Species	Chashma Barrage	Dera Ismail Khan	Dhup Shumali	Taunsa Barrage
Brooks's Leaf Warbler *Phylloscopus subviridis*	X		X	
Hume's Warbler *Phylloscopus humei*	X	X	X	X
Yellow-eyed Babbler *Chrysomma sinense*		X		
Jerdon's Babbler *Chrysomma altirostre*	X	X		X
Common Babbler *Turdoides caudatus*			X	X
Striated Babbler *Turdoides earlei*	X	X	X	X
Jungle Babbler *Turdoides striatus*				X
Lesser Whitethroat *Sylvia curruca*		X	X	X
Sand Lark *Calandrella raytal*	X	X		X
Crested Lark *Galerida cristata*	X	X	X	X
Eurasian Skylark *Alauda arvensis*			X	X
Oriental Skylark *Alauda gulgula*		X	X	
House Sparrow *Passer domesticus*		X	X	X
Sind Sparrow *Passer pyrrhonotus*	X	X	X	X
White Wagtail *Motacilla alba*	X	X	X	X
White-browed Wagtail *Motacilla maderaspatensis*		X		
Citrine Wagtail *Motacilla citreola*	X	X	X	X
Yellow Wagtail *Motacilla flava*	X	X	X	
Paddyfield Pipit *Anthus rufulus*	X	X	X	
Rosy Pipit *Anthus roseatus*	X	X	X	X
Water Pipit *Anthus spinoletta*	X	X		
Black-throated Accentor *Prunella atrogularis*	X	X		
Red Avadavat *Amandava amandava*		X	X	X
Indian Silverbill *Lonchura malabarica*			X	
Rock Bunting *Emberiza cia*			X	
Reed Bunting *Emberiza schoeniclus*	X	X	X	X

VU = Globally threatened: Vulnerable
X = Species present