



# The Distribution and Status of Cinereous Vulture (*Aegypius monachus*) at Jorbeer, Bikaner, Rajasthan, India: A Study of Near Threatened Monk Vulture

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## Abstract

*Cinereous vulture (Aegypius monachus) is winter migratory and arrives with flocks of Eurasian and Himalayan Griffon vultures at Jorbeer, Bikaner (Rajasthan). Population gradually increases in October and maximum population observed during December to February. The maximum of 71 Cinereous vultures were recorded from October, 2001 to March, 2011. The population growth of these vultures were observed slow and consistent. The distribution of Cinereous vultures were calculated in 40 villages around Jorbeer covering 4680 square / kilometers area between Latitude 27°41' North to 28°42' North and 73°02' East to 73°39' East Longitude as their home range. No sign of infection and disease were observed in vultures. Nests have not been recorded as Cinereous vultures reaches with their young ones.*

**Keywords:** Cinereous vultures, population, winter migration.

## Introduction

The cinereous vultures (*Aegypius monachus*) is also known as the Black vulture, Monk vulture or Eurasian Black vulture. It is a member of the family Accipitridae, which also includes many other diurnal raptors such as kites, buzzards and harriers. It is one of the two largest old vultures. The cinereous vulture is believed to be the largest true bird of prey in the world<sup>1</sup>. The Himalayan Griffon vulture is the closest rival to the size of cinereous vulture. Cinereous vulture is huge bird measures 98-120 cm (39-47 inch) long with a 2.5 - 3.1 m (8.2 - 10 ft.) wingspan. The body mass in this species can range from 7 to 14 kg. It is thus one of the world's heaviest flying birds<sup>1</sup>. The cinereous vulture is distinctly dark, with the whole body being dark brown excepting the pale head in adults, which is covered in fine down. Cinereous vulture conservation depends on the land management where it is to be found while breeding sites have a strictly enforced protection level<sup>2</sup>, management efforts in foraging are still incipient<sup>3</sup>. The main threats to this and other scavenging raptor species come from the scarcity and poor quality of the food, including poisoning<sup>4,5</sup>. The first step to undertake there conservation action is to know and delimit areas where the species is present at different life cycle.

Nine species of vultures are recorded in Indian subcontinent<sup>6</sup> of which seven species have been observed at Jorbeer, Bikaner (Rajasthan) India<sup>7</sup>. The seven species of vultures are Long billed vulture (*Gyps indicus*), White Back vulture (*Gyps bengalensis*), Eurasian Griffon vulture (*Gyps fulvus*), Himalayan Griffon vultures (*Gyps himalayensis*), King vulture (*Sarcogyps calvus*), Cinereous vulture (*Aegypius monachus*) and Egyptian vulture (*Neophron percnopterus*). All the vulture species have observed

winter migratory. Some Egyptians are resident vultures of this area. Cinereous vulture (*Aegypius monachus*) is regular winter visitor at Jorbeer. The huge vulture has been declared near threatened (IUCN). In recent years ornithologists and conservationists have been least concerned about the decreasing numbers of the Black vulture (*Aegypius monachus*). However, neither of the study explains winter migratory patterns, status and home range of Cinereous vultures (*Aegypius monachus*). This study will establish complete ecology of Cinereous vulture in and surrounding areas of Jorbeer, Bikaner (Rajasthan).

## Material and Methods

**Study Site:** Jorbeer area as dumping stand has remained a major source of attraction for vultures in past years as about 20-35 carcasses dumped per day by municipal board. It is situated South-East to Bikaner 12 km away from city. The geographical location of study area 20°3' North latitude and 73°5' East longitudes at height of 234.84 MSL. Jorbeer has extreme desertic conditions where the temperature reaches upto 49.5°C high and minimum -1°C to -2°C high solar incidence 450-500 Cal M<sup>-2</sup> day<sup>-1</sup>. Bikaner district is a Western part of "Thar" desert. The vegetation of the region is thorny and scanty, trees like *Prosopis cineraria*, *Salvadora Oleoides*, shrubs such as *Zizipus mummularia* and grass *Panicum antidotale* etc.

**Methods:** The study has been conducted from October, 2001 to March, 2011. Counts were made by using binocular. Cinereous vultures were counted 7.00 - 18.00 hrs. in regular intervals during day period. The maximum population was recorded in every month and presented graphically. Cinereous vulture is a big birds and easy to identify with its dark blackish colour. A

survey of 74 villages have also been conducted to study the home range of cinereous vultures at Jorbeer and 40-80 Km. surrounding areas of Jorbeer in Bikaner district. The total 8640 square / kilometer home range between 27°35' North to 28°30' North and Longitude 72°57' East to 73°49' East has been calculated for distribution of Cinereous vultures.

## Results and Discussion

Cinereous vulture is a largely solitary bird, being found alone or in pairs much more frequently than most other old world vultures. At Jorbeer large carcasses or feeding sites, small groups of cinereous vultures may congregate. Such groups can exceptionally include 7-12 vultures upto average 30 in very old reports<sup>1</sup>. Like all vultures, the cinereous vulture eats mostly carrion. The cinereous vultures feeds on carrion ranging from the largest mammals available to fish and reptiles.

The cinereous vulture arrives at Jorbeer in October or in the first week of November and stays first week of March. Cinereous vultures are completely migratory visiting only in winters. They reaches along with groups of Griffon vultures. The maximum population of cinereous vultures from October 2001 to March, 2011 were recorded i.e. 35 cinereous in year 2000-2001, 25 vultures in 2001-2002, 70 vultures in 2002-2003, 63 vultures in 2003-2004, 59 vultures in 2004-2005, 55 vultures in 2005-2006, 69 vultures in 2006-2007, 67 vultures in 2007-2008, 70 vultures in 2008-2009, 64 vultures in 2009-2010 and 71 cinereous vultures in year 2010-2011 (figure 1).

The maximum population of Cinereous vulture (*Aegypius monachus*) recorded in December, January and February months. Cinereous vulture were observed regular migratory vulture at Jodhpur district and also observed maximum 52

Cinereous vulture in year 2003<sup>8</sup>. Cinereous vultures were recorded in 1991-1992 in Keoladeo National Park Bharatpur<sup>9</sup>. In Spain 1200 pairs of *Aegypius monachus* eating tones of dead livestock per year with Griffon vultures and 88 nests and 11 perches also observed over five consecutive years of work in Central Spain<sup>11</sup>. More recently, protection and deliberate feeding schemes have allowed some local recoveries in numbers, particularly in Spain, where numbers increased to about 1,000 pairs by 1992 after an earlier decline to 200 pairs in 1970. This colony have now spread its breeding ground to Portugal.<sup>12</sup> It is a regular winter visitor around the coastal areas of Pakistan in small numbers. As of the turn of the 21st Century, the worldwide population of Cinereous vultures is estimated at 4500-5000 individuals<sup>1,13,14</sup> (figure 2).

The home range of cinereous vulture is distributed in 40 villages covering 4680 square / kilometer area between Latitude 27°41' North to 28°42' North and 73°02' East to 73°39' East Longitude as the home range, distributed in Eastern - Southern, South - West and some part of North area of Bikaner. Approximately 1 to 30 carcasses were recorded during survey in various villages for these birds. The foraging area of Cinereous vultures from a breeding colony of central Spain were analysed which were feeding on livestock carcasses and estimated movement ranges and feeding locations.<sup>11</sup> They have calculated home range of cinereous vultures feeding on carcasses as 152, 290.13 ha. Raptors home ranges are determined by food availability<sup>15</sup>. The feeding and roosting site both were close together at Jorbeer, indicates the high suitability of utilization carcass dumps as food source because it reduces utilization of energy for vultures, while reaching for food<sup>16</sup>. Home range size of raptors increases with body mass. Predatory birds have large home ranges than similar sized non-predatory birds<sup>17</sup>. [figure 3 (a and b)]

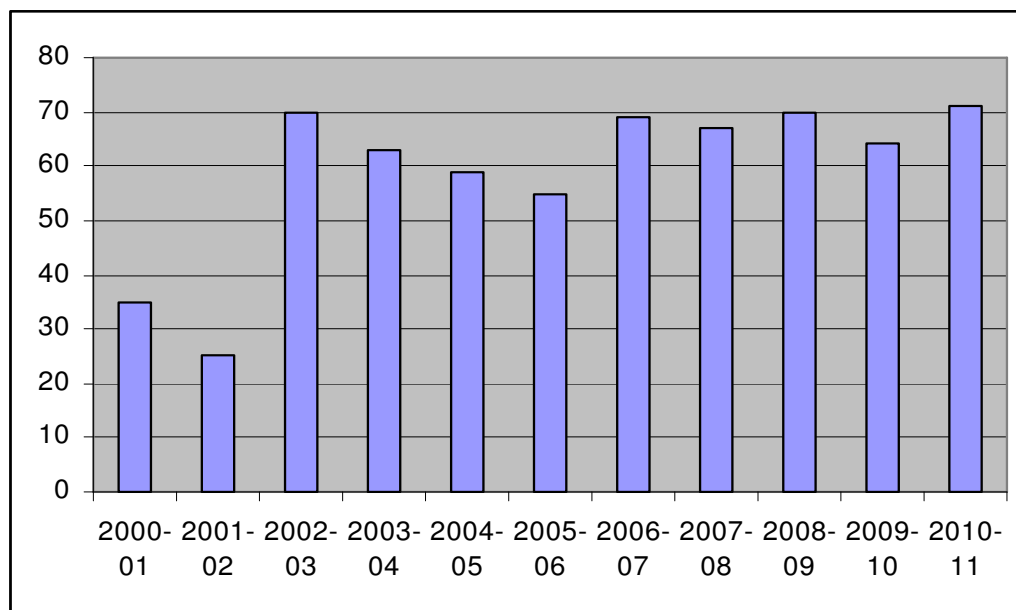


Figure-1  
Cinereous vulture (*Aegypius monachus*) showing maximum population of year 2000-11



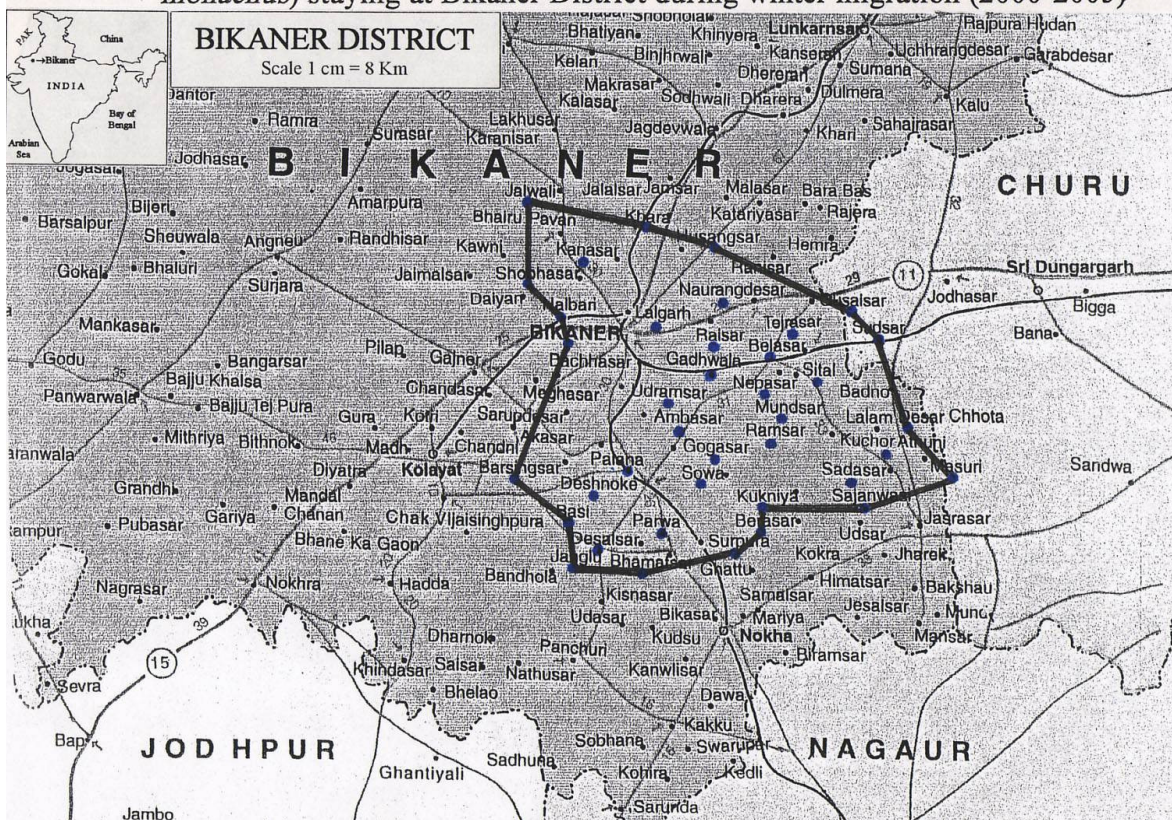


Figure-2

Map: showing distribution and home range of Cinereous Vultures (*Aegypius monachus*) at Bikaner District during winter migration (2001-2011)

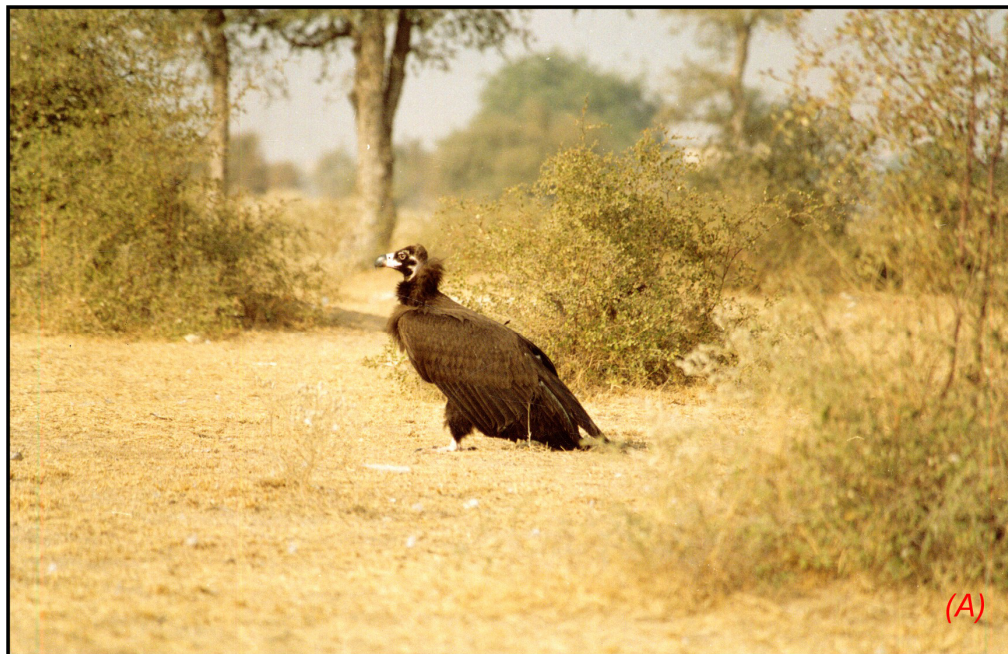


Figure-3(A)

Showing adult Cinereous vulture (*Aegypius monachus*) sitting on ground at Jorbeer





Figure-3(B)

Showing a group of Cinereous vulture (*Aegypius monachus*) sitting on ground at Jorbeer

In their current European range and through the carcasses and Middle East cinereous vultures are found from 100 to 2,000 m (330 to 6,600 ft.) in elevation, while in their Asian distribution, they are typically found at higher elevations<sup>1</sup>. The species can fly at a very high altitude. It has a specialised hemoglobin alpha D subit of high oxygen affinity which makes it possible to take up oxygen efficiently despite the low partial pressure in the upper troposphere<sup>18</sup>. Juvenile and immature Cinereous vultures may move large distances across undeveloped open-dry habitats in response to snowfall or high summer temperatures<sup>12</sup>.

## Conclusion

The cinereous vultures (*Aegypius monachus*) has declined over most of its range in the last 200 years in past due to poisoning by eating poisoned bat put out to kill dogs and other predators, and to hygiene standards reducing the amount of available carrion. It is currently listed as near threatened. This study reveals the status migratory patterns and distribution as home range of Cinereous vultures in winters at Jorbeer, Bikaner (Rajasthan). The population of cinereous vultures were recorded almost consistent. No sharp increased observed in numbers. The maximum of 71 vultures observed in 11 years of study period. The distribution of cinereous vultures in 40 villages were covering 4680 square / kilometers at Bikaner district. The huge bird observed complete migratory visitor in the area.

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