

# CHICKEN BREEDS OF INDIA

## *Red Jungle Fowl*



*R K Vijn  
M S Tantia  
P K Vij  
Sandeep Rattan  
Sushil Sood  
S P S Ahlawat*



**National Bureau of  
Animal Genetic Resources**



PO Box 129, Karnal 132 001

Red jungle fowl is one of the four jungle fowls found in the Indian subcontinent belonging to genus Gallus, the other three being grey, Ceylon and green. The red jungle fowl is considered to be progenitor of all the domestic chicken of the world. The red jungle fowl is a rare case in which the domestication of a species has not resulted in the extinction of its wild ancestor. The birds were originally kept for sport, cockfighting being a favourite pastime of ancient civilizations. The jungle fowls that still abound these areas have a great deal of variation. The three major subspecies found in the areas are Gallus gallus gallus with white earlobes and Gallus gallus spadiceus and Gallus gallus jabouillei with red ear lobes. The red jungle fowl is still found in wild today in India, Burma and Java. The red jungle fowl inhabiting the areas express pure white earlobes covered completely with white patches. In India the red jungle fowl is widely distributed in the North, Central and Eastern parts of India across to Assam, Mizoram and Tripura. It has been included in the Schedule IV of the Wild Life Protection Act 1972.



### **Morphology**

In the wild there is lot of variation, which is conspicuous in color, length, and shape of male hackles during the breeding season. The males and females are morphologically distinct. The male is 65- 75 Cm while female is 42-46 cm in height. The male bird is black below and orange red above. The



neck and the rump is covered by long yellowish colored feathers called Hackles which fall off during the molting phase. The tail is laterally compressed and black (glossy deep green) in



color. The cock has a comb and earlobes in addition to wattles. The female is brown above and pale reddish brown below. The neck is covered with short hackles, streaked in black and gold. The adult males weigh 700-1100 g while the females weigh 500-750g. The wing and tail lengths of male are approximately 210-250 mm and 300-380 mm while the values for females are 180-200 and 145-165 mm respectively.

The polygamous males are highly aggressive and show territorial behavior which he shares with 3-5 hens. The territory usually extends to 60-70 feet.

The clutch size is 4-6 eggs with an incubation period of 19-21 days. Red jungle fowl is a shy bird and when alarmed runs for forest cover with neck stretched out and



tail depressed. The nests are well hidden and protected. Egg weight ranges from 24 to 30g with an average of 26.81g. Egg colour ranges from the shades of pink to creamy white. Average body weight of day old chick is 16.34g.

### **Morphological Differences with the domestic chicken**

The major difference is in the absence of eclipse plumage in domestic chicken or crosses of domestic chicken and red jungle

fowl. The red jungle fowl molt into a plumage called eclipse plumage. It is visible in male's hackles during the month of June through September; the females also grow parallel plumage, but



are not distinguishable. The red jungle fowl possesses slender and dusky blackish legs while the legs of domestic chicken are thick and yellow in color. The red jungle fowl females lack combs almost completely while the domestic stock shows the presence



of prominent combs and wattles on the head. The spur is long and pointed in red jungle fowl compared to domestic stock and shows the aggressive behavior of the birds. The red jungle fowl

has a typical characteristic that it carries its tail horizontally. Both male and female have a proportionately longer beak compared to domestic stock giving them a distinct game like appearance.

### **Genetic Architecture of Red Jungle Fowl**

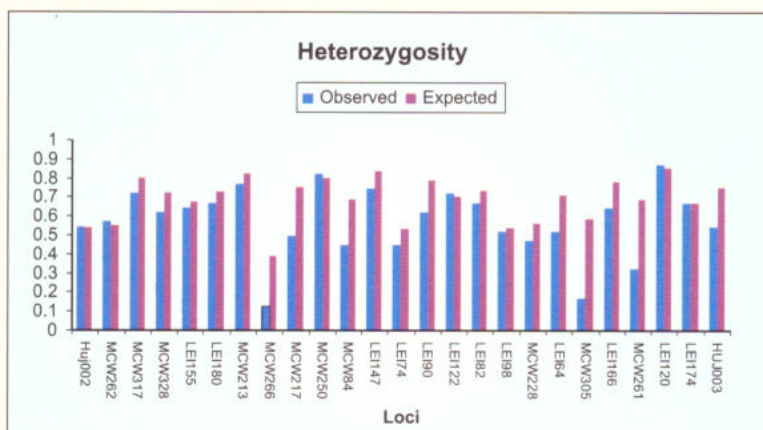
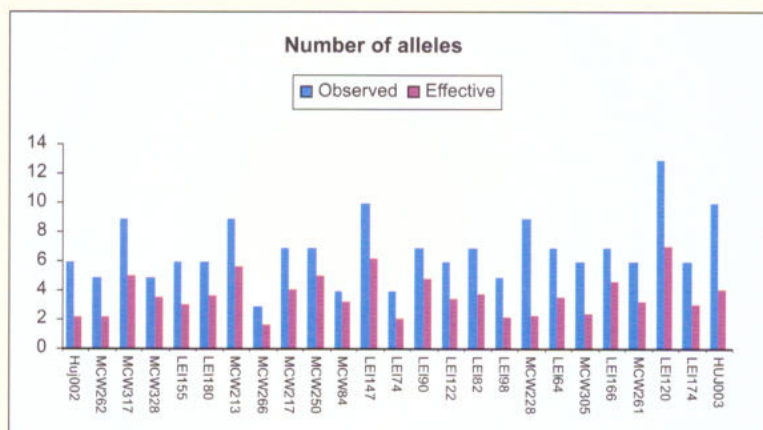
25 microsatellite loci were used for generating the data for inferring the population genetic parameters. The average number of alleles in 25 microsatellite loci was found to be 6.8 while the effective mean number of alleles was found to be 3.9.

The average expected heterozygosity and observed heterozygosity were 0.691 and 0.579 respectively. The observed heterozygosity was less than expected heterozygosity and points towards inbreeding and existence of a population structure. The test for deviation from Hardy Weinberg

Equilibrium revealed 16 loci deviating from the HWE. To adjudge the status of red jungle fowl population in terms of reduction in the effective population size the bottleneck studies were



conducted and the mode shift test did not reveal any bottle neck to have occurred in the last few generations. The microsatellite analysis revealed that although the birds are in wild most of the alleles of red jungle fowl are very similar to other domestic birds from all over India. The data of 25 Microsatellites revealed only six alleles that were specific for



red jungle fowl. Three alleles of MCW 317, one allele each of loci MCW 250, MCW305 and LEI 166 were private alleles with frequency ranging from 2.5 to 8.75%.

The Correspondence analysis of 17 poultry populations (15 indigenous poultry breeds, White Leghorn and Red Jungle Fowl) revealed the red jungle fowl grouped separately from rest of the indigenous breeds. The analysis revealed that there is no mixing of domestic breeds with red jungle fowl and purity of the stock of Red Jungle fowl is intact in Himachal Pradesh.

