



॥ ज्ञानम् परम् ध्येयम् ॥

Shri Shivaji Education Society, Amravati's

SHRI SHIVAJI SCIENCE & ARTS COLLEGE, CHIKHALI
Dist. Buldana

Internal Assessment - Assignment / Project Report / Seminar

Name of the Student Gauri Suresh Kene

Class BSc IIIrd (Sem. V)

Academic Session : 20 .21....., - 20 .22.....

Marks Obtained : (4)



Shri Shivaji Education Society, Amravati's
SHRI SHIVAJI SCIENCE & ARTS COLLEGE, CHIKHALI
Dist. Buldana

CERTIFICATE

Name of Department: Zoology


Academic Session: 20 21..... - 20 22.....

This is to certify that this Assignment/Project Report/Practical Book, Contains the Bonafide Record of Shri/Kumari/Shrimati Gauri Suresh Kene of B.Sc. IIIrd (Semester V) during the academic Session 20 21..... - 20 22... The Topic of the assignment / Project Report is Diversity of Snake

Dated 18...../...../2022.....

Signature of the Teacher
who guide / taught the Examinee.

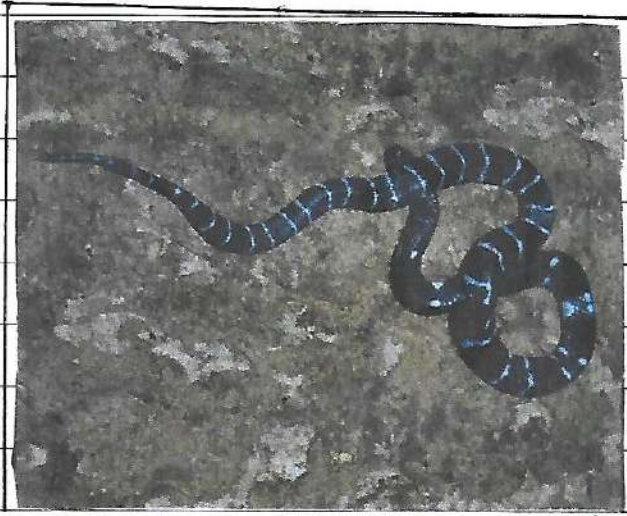
1. _____
2. _____


HEAD
Department of Zoology
Shri Shivaji Sci. and Arts College
Chikhli Dist. Buldana 443201
Head of the Dept.

Note : In absence of certificate for Assignment / Project Report / Practical Book examine shall not be allowed to appear for the examination.

• Common Krait

The common krait, also known as the blue krait, it is a species of highly venomous snake of the genus *Bungarus* native to the Indian subcontinent. It is a member of the "Big Four" species that inflict the most snake-bites on humans in Bangladesh & India



* Scientific Classification

Kingdom : Animalia
Phylum : Chordata
Class : Reptilia
Order : Squamata

Suborder : Serpentes
 Family : Elapidae
 Genus : Bungarus
 Species : B. caeruleus

* Description :-

The average length of the common krait is 0.9m, but it can grow to 1.75m. Males are longer than females, with proportionately longer tails. The head is flat & the neck hardly evident. The body is cylindrical, tapering towards the tail. The tail is short & rounded. The scales are highly polished, in 15-17 rows, the vertebral row is distinctly enlarged & hexagonal. Colouration is generally black or bluish black, with about 40 thin, white crossbars which may be indistinct or absent anteriorly.

* Distribution & habitat

The common krait is distributed from Sindh to West Bengal, throughout South India & Sri Lanka at elevations up to about 1,600m. It has also been recorded in Afghanistan, Bangladesh, & Nepal. It lives in a wide variety of habitats, from fields & low scrub jungle, as well as settled areas. It rests in termite mounds, brick piles, rat holes, even inside houses.

* Behaviour & Diet

Behavioral differences during day & night time have been reported in *B. caeruleus*. During the day, it is sluggish & generally docile. It often hides in rodent holes, loose soil, or beneath debris, so is rarely seen. It often rolls its body into a loose, coiled ball, keeping its head well concealed.

The common krait feeds primarily on other snakes, including: blind worms & cannibalizes on other kraits, including the young. It also feeds on small mammals, lizards & frogs.

* Venom

The common krait's venom consists mostly of powerful neurotoxins, which induce muscle paralysis.

* The few symptoms of the bite include:

tightening of facial muscles in one to two hours of the bite, inability of the bite victim to see or talk, & if left untreated, the patient may die from respiratory paralysis within four to five hours.

Indian cobra

The Indian cobra, also known as the spectacled cobra, Asian cobra, or bino cellate cobra, is a species of the genus *Naja* found, in India, Pakistan, Bangladesh etc. & a member of the "big four" species that inflict the most snakebites on humans in India. It is distinct from the King cobra which belongs to the monotypic genus *Ophiophagus*.



* Scientific classification

Kingdom : Animalia
Phylum : Chordata
Class : Reptilia

Order : Squamata

Suborder : Serpentes

Family : Elapidae

Genus : Naja

Species : Naja Naja

* Description

The Indian cobra is a moderately sized, heavy bodied species. This cobra species can easily be identified by its relatively large & quite impressive hood, which it expands when threatened. Many specimens exhibit a hood mark. This hood mark is located at the rear of the Indian cobra's hood. When the hood mark is present, are two circular ocelli patterns connected by a curved line, evoking the image of spectacles.

* Distribution & habitat

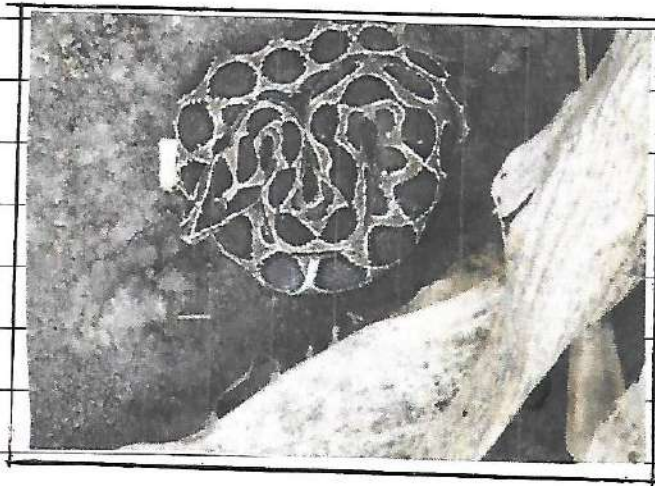
The Indian cobra is native to the Indian subcontinent & can be found throughout India, Pakistan, Sri Lanka, Bangladesh, & southern Nepal. The Indian cobra inhabits a wide range of habits throughout its geographical range. It can be found in dense or open forests, plains, agricultural lands, rocky terrain, wetlands & it can even be found in heavily populated urban areas.

Venom

The Indian cobra's venom mainly contains a powerful post-synaptic neurotoxin & cardiotoxin. The venom acts on the synaptic gaps of the nerves, thereby paralyzing muscles & in severe bites leading to respiratory failure or cardiac arrest.

Russell's viper

Russell's viper is a venomous snake in the family Viperidae native to the Indian subcontinent & one of the big four snakes in India. It was described in 1797 by George Shaw & Frederick Polydore Nodder, & named after Patrick Russell who wrote about it in his 1796 work *An account of Indian serpents*.



Scientific classification

Kingdom : Animalia
Phylum : Chordata
Class : Reptilia
Order : Squamata
Suborder : Serpentes
Family : Viperidae
Genus : Daboia
Species : D. russelii

* Description

The Russell's viper's head is flattened, triangular, & distinct from the neck. The snout is blunt, rounded, & raised. The nostrils are large, each in the middle of a large, single nasal scale. The lower edge of the nasale scale touches the nasorostral scale. The supranasal scale has a strong crescent shape & separates the nasal from the nasorostral scale anteriorly. Russell's viper grows to a maximum body & tail length of 166 cm (65 in) & averages about 120 cm in mainland Asia. In islands, it is slightly shorter on average. It is more slender than most vipers.

* Distribution & habitat

Russell's viper is found in India, Sri Lanka, Bangladesh, Nepal, & Pakistan. Populations from South-East Asia previously assigned to this species are now considered to be part of a different species. The type locality is listed as India. More specifically, this would be the Coromandel Coast, by inference of Russell.

This species is often found in highly urbanized areas & settlements in the countryside, the attraction being the rodents commensal with man.

* Behaviour & Diet

Russell's viper is terrestrial & active primarily as a nocturnal forager. However, during cool weather, it alters its behavior & becomes more active during the day.

Adults are reported to be slow & sluggish unless pushed beyond a certain limit, after which they can become very aggressive. Juveniles, though, are generally more nervous. When threatened, they form a series of s-loops, raise the first third of the body, & produce a hiss that is supposedly louder than that of any other snake.

Russell's viper feeds primarily on rodents, although especially it will also eat small reptiles, land crabs, scorpions, & other arthropods. Juveniles are crepuscular, feeding on lizards & foraging actively.

Venom

Venom of this species is delivered by means of solenoglyphous dentitions. The venom quantity of venom produced by individual specimens of *O. russelii* is considerable.

Green Grass Snake

The green grass snake is a species of North American nonvenomous snake in the family Colubridae. The snake species is also referred to as the grass snake. It is a slender, "small medium" snake that measures 36-51 cm as an adult. It gets its common name from its smooth dorsal scales, as opposed to the rough green snake, which has keeled dorsal scales. The smooth green snake is found in marshes, meadows, open woods, & along stream edges, & is native to regions of Canada, the United States, & northern Mexico. A non-aggressive snake, it seldom bites & usually flees when threatened. It mates in late spring to summer, & females lay their eggs from June to September.

* Scientific Classification

Kingdom : Animalia
Phylum : Chordata
Class : Reptilia
Order : Squamata
Suborder : Serpentes
Family : Colubridae
Genus : *Ophiodrys*
Species : *O. vernalis*



* Description

The smooth green snake is slender. In size, it is classified as a "small medium" snake, reaching to 86-91 cm in total length as an adult. The longest smooth green snake was measured as being 66 cm in total length. The tail makes up about $\frac{1}{4}$ to $\frac{1}{2}$ the length of the snake; males have longer tails than females. It is uniform light green on its back, with a yellow or white belly, & has smooth dorsal scales, unlike those of the rough green snake, which are keeled. Its smooth dorsal scales are arranged in 15 rows at midbody.

* Habitat

O. vernalis can be found in many different habitats, including marshes, meadows, the edges of streams, & open woods. It prefers to be on the ground, in open areas without a lot of shrubs. During hibernation, the smooth green snake ~~to~~ looks for burrows, ant hills, & other dug-out underground areas, normally gathering in large numbers.

* Behavior & Diet

The smooth green snakes relies on an environment matching its green scales for camouflage to protect itself from predators. If threatened, a smooth green snake will usually flee. It is a docile snake, seldom biting

↳ usually allowing humans to come close. If provoked, it can secrete a substance from its anal gland, causing a foul smell. When handled by humans, it usually shows excited behavior & calms down after wrapping itself around a finger. When it hunts, it turns its head from side to side, finding prey with its tongue & an organ on the roof of its mouth that interprets chemical signals.

The smooth green snake mostly eats insects & spiders, including spineless caterpillars, harvestmen, moths, ants, snails, worms, & slugs. While hunting, it uses both chemical & visual clues to find prey, & kills with a strike instead of constriction.

Worm Snake / Carphophis

Carphophis / worm snake is a genus of small colubrid snakes endemic to the United States. The genus consists of two species.



Scientific Classification

Kingdom : Animalia
Phylum : Chordata
Class : Reptilia
Order : Squamata
Suborder : Serpentes
Family : Colubridae
Subfamily : Dipsadinae
Genus : Carphophis

* Description

Worm snakes are small snakes, 35 cm or less in total length. They are usually a dark brown in colour on the upperside, with a lighter-coloured, pink or orange underside. They are easily mistaken for other similar species, such as the earth snakes & the brown snakes. They have narrow heads, small eyes, & sharp tail tips. They are not venomous.

Behavior & Diet

Worm snakes are fossorial snakes, & spend the vast majority of their time buried in loose, rocky soil, or under forest leaf litter. They are abundant within their range, but rarely seen due to their secretive nature.

Worm snakes eat almost entirely earthworms, but they will also consume soft-bodied insects.

Checkered Keelback

The checkered Keelback also known commonly as the Asiatic water snake, is a common species in the subfamily Natricinae of the family



Scientific classification

Kingdom : Animalia
Phylum : Chordata
Class : Reptilia
Order : Squamata
Suborder : Serpentes
Family : Colubridae
Genus : Fowleia
Species : F. piscator.

* Description

The eye of *F. piscator* is rather small & shorter than its distance from the nostril in the adult. Its rostral scale is visible from above. The internasal scales are much narrowed anteriorly & subtriangular, with the anterior angle truncated & as long as the prefrontal scales. The frontal scale is longer than its distance from the end of the snout, & as long as the parietals or a little shorter. The loreal is nearly as long as it is deep. There are one preocular & three post-oculars.

* Behavior & Habitat

Most of the time this snake tries to rise its head as much as possible & expand its neck skin mimicking a cobra hood & intimidate the threat. Through it is non-venomous for human.

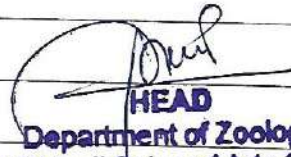
The preferred habitat of *F. piscator* is in or near freshwater lakes or rivers.

* Diet

F. piscator feeds mainly on small fish & water frogs.

Indian cobra

The Indian cobra, also known as the spectacled cobra, is its common name


HEAD

Department of Zoology
Shri Shivaji Sci. and Arts College
Chikhli Distt. Buldana 443201



॥ ज्ञानम् परम् ध्येयम् ॥

Shri Shivaji Education Society, Amravati's

SHRI SHIVAJI SCIENCE & ARTS COLLEGE, CHIKHALI
Dist. Buldana

Internal Assessment - Assignment / Project Report / Seminar

Name of the Student Seushti Sanjay Ambhore

Class B.Sc IIIrd ye (Sem. V)

Academic Session : 20 21..... - 2022.....

Marks Obtained : (4).....



Shri Shivaji Education Society, Amravati's
SHRI SHIVAJI SCIENCE & ARTS COLLEGE, CHIKHALI
Dist. Buldana

CERTIFICATE

Name of Department: Zoology

Academic Session : 20 21 - 20 22


This is to certify that this Assignment/Project Report/Practical Book, Contains the Bonafide Record of Shri/Kumari/Shri[✓]/mati Srushti Sanjay Ambhore of B.Sc. IIIrd yr (Semester V) during the academic Session 20 - 20

The Topic of the assignment / Project Report is Habitat Preferences and Breeding Biology of Geey Feancolin

Dated 15 / 01 / 20 22

Signature of the Teacher
who guide / taught the Examinee.

1. _____
2. _____


HEAD
Department of Zoology
Shri Shivaji Sci. and Arts College
Chikhli Distt. Buldana 443201
Head of the Dept.

Note : In absence of certificate for Assignment / Project Report / Practical Book examine shall not be allowed to appear for the examination.

Name - Sneushti Sanjay Ambhore.

Class - B.sc IIIrd year.

Sub - Zoology.

Project Topic - Habitat Preference and Breeding
Biology of Grey Francolin.

ACKNOWLEDGEMENT

I thank my HOD mam to offer me the project on the topic HABITAT PREFERENCE AND BREEDING BIOLOGY OF GREY FRANCOLIN.

I thank her to knowledge with me on this topic. She help me to understand about Grey francolin. She has offered me variety of knowledge and her experience. she is my zoology teacher.

I personally thankful to uncle who give a lot of help to me for this project. They have their own farm of grey francolin, where grow up of grey francolin at large scale. and their farm is located in Sakhal, which is seven kilometer from my village (Buldana)

I have two another member in my project group. Their names are ① Priyanka Misal and ② Vaishnavi Lahase and this project is completed in the group by me and my another two friends. firstly we had visited to ~~that~~ their farm. There were only autoriksha available to went that village. After visiting farm we made conversation with the owner of farm. in this conversation we ask some questions about grey francolin and he gave the all answer of that questions very humbly. This information gone very helpful and useful to us for this project. So, I am very thankful to uncle, for this help.

INDEX

S.N.	Content	Page No.
1.	Introduction of Grey frankolin	1
2.	Classification of Grey frankolin	1
3.	Subspecies	2
4.	Breeding season	3
5.	Habitat and distribution	3-4
6.	Nesting construction	4-5
7.	Incubation period	6
8.	Identification	7
9.	General Information	8-12
10.	Conclusion	13

INTRODUCTION of Grey francolin

The grey francolin (*Ortygornis pondicerianus*) is a species of francolin found in the plains and drier parts of the Indian subcontinent and Iran. This species was formerly also called the grey partridge, not to be confused with the European grey partridge. They are mainly ground-living birds and are found in open cultivated lands as well as scrub forest and their local name of teetar is based on their calls, a loud and repeated Ka-tee-tae... tee-tar which is produced by one or more birds. The term teetar can also refer to other partridges and quails. During the breeding season calling males attract challengers, and decoys were used to trap these birds especially for fighting.

CLASSIFICATION of Grey francolin:

Scientific Classification:

Kingdom : Animalia
 Phylum : Chordata
 Class : Aves
 Order : Galliformes
 Family : Phasianidae
 Genus : Ortygornis
 Species : O. pondicerianus

Subspecies -

There are three recognized subspecies:

- *O.p. interpositus* (Hartert, 1917) - north Indian grey francolin - northwest Indian Subcontinent
- *O.p. mecranensis* (Zarudny and Harms, -1913) - Baluchistan grey francolin - arid southeastern Iran and southern Pakistan
- *O.p. pondicerianus* (Gmelin, 1789) - nominate - southern India and Sri Lanka

Habitat and Distribution:

The grey francolin is normally found foraging on bare or low grass covered ground in scrub and open country, and is rarely found above an altitude of 500 m above sea level in India and 1200 m in Pakistan. The distribution is south of the foothills of the Himalayas westwards to the Indus Valley and eastwards to Bengal. It is also found in the north-western Sri Lanka. Introduced populations are found in the Andaman and Chagos Island. They have been introduced to Nevada in the United States of America and Hawaii, along with several other species of francolin.

Breeding Season:

Grey francolins are typically found in pairs but family parties or coveys of 4-8 birds are also known, which break up into pairs in the breeding season (Grimmett et al. 1998). Potts (1986) reported that both male and female choose a mate. These pairs remain together for whole life. However, since mortality of the mates was common, both sexes readily remate (Carroll, 1993).

Trippensee (1948) reported the breeding season of grey partridge (*Perdix - perdix*) extending from March to June, while Waite (1948) and Henry (1971)

reported that grey francolin breeds during May, August and December. In faisalabad (Pakistan) its breeding season extended from March to September, However, large numbers of eggs were recorded in March and June, and maximum numbers of fledglings were reported in April to June (Ullah, 1991).

In pothwae area (Pakistan), grey francolin (*Francolinus pondicerianus*), breeds between end of March and mid of June (Hussain et al 2012). In Rajasthan (India), grey francolin has been reported to build nests in February - April and July - October in its native range, however, it breeds in kutch area from February to May and occasionally again in August and September (Sharma 1983)

Nest Construction :

Nest of grey francolin always well concealed inside a clump of grass growing up through a thorn bush and it is only a deep bed on the ground, into which a few dead leaves blades are added by the female. (Robert, 1991) Similarly, Hosking and Newberry (1944) stated that nest is scarped in ground, lined with a little grass or a few leaves. Mostly eggs while hen sits on

them. Ali (1945) reported that the nest is a simple grass lined with scurps on the ground in grassland standing crops or scrub jungle. Bao et al.... (2004) observed grey partridge (*Perdix perdix*) clutches in the maize crops, which indicates that species also breeds in agricultural vegetation. Predation for this species eggs and chicks can be assumed higher as they made nests on grounds (Potts, 1980; Novoa et al...., 2002; Putaala and Hissa, 1998). The management of habitat did not have dominant effect on the breeding season in them. Hatching in the grey partridge during the first three weeks of their life has more chance to die, while female mortality becomes highest during incubation.

Sharma (1983) reported that grassland and ploughed field, and *Euphorbia* spp. were selected as nest sites by grey francolin during breeding season. According to Hussain et al., (2012), nests of grey francolin are mostly made with *Desmostachia bipinnata*, *Acacia modesta*, *Ziziphus jujuba*, *Euphorbia* spp. and *Imperata cylindrica* in agro-ecosystem of Pothwar Plateau, Pakistan. Johnsgard (1973) reported nests of grey partridge (~~Per~~ *Perdix -perdix*) in North America under some protective cover inside shady area for temperature modulation. However, there are reports that in India a nest was found in stacked pile of sorghum less than 1.5 m above the ground (Bump and Bump 1964).

Incubation Period :

Incubation is exclusively accomplished by the female in grey francolin (Islam 1999) and incubation period lasts for 18-19 days. When she incubates, the male remains close and gives alarm calls upon detecting threats (Johns, 1980). Hussain et al (2012) reported the incubation period of grey francolin was also reported in Delhi and in Pothwar region of Pakistan from 19 to 22 days. in Bump and Bump (1964) reported that grey francolin incubated eggs in 18 to 20 days in Washington state on west coast of USA. While 18 to 19 days of incubation period in grey francolin was also reported in Delhi and Karachi areas (Ali and Ripley, 1983; Roberts, 1991).

Identification :

The head of female black francolin is curved with brown iris eyes colour and unique pattern of brown colour crown and the throat color is black. It has a length range around 33 to 36 cm and weight approximate about 453 g (16 oz) and the size of black with black breast rufous belly, white spot on flanks and golden brown spots on body. The flight pattern of black francolin is short, direct flight punctuated by glides with rounded wings, rounded tail narrow black and white bars.

Male :-

The male black francolin is black with a white patch on the cheek, a chestnut collar and white spots on the flanks. The back and wings are scalloped with shades of golden brown with sub-terminal tawny-buff bands and pale edges. The tail is black with narrow white or greyish bars. Its legs and neck are reddish-brown to red.

Female :

The female is mainly brown, but has a chestnut hind neck. The extent of the white spotting on the flanks varies substantially across the species' range and the depth of colour of the females similarly varies. The female has the upper plumage, wings and tail as in the male but the black is replaced by mottled brown and the brown bars on the lower back and tail are wider. Female is similar but dull with no cheek patch.

General Information about Grey Francolin:

• Lower Classification

Black francolin
 Grey francolin
 Red-necked spurfowl
 Painted francolin
 Swamp francolin
 Natal spurfowl
 Grey-winged francolin
 Chinese francolin
 Red winged francolin
 Hildebrandt's spurfowl
 Djibouti spurfowl
 Mooetand francolin
 Latham's francolin
 Clapperton's spurfowl
 Hartlaub's spurfowl
 Ring-necked francolin
 Mount Cameroon francolin
 Finsch's francolin
 Heuglin's spurfowl
 Jackson's spurfowl
 Schlegel's francolin

• Voice :

The call of Grey Francolin describe as a food ringing kik cheek - cheerakik or "kik - kik - kik", "kwee - kweeee - kwee" can be heard in the mornings and almost all day during the breeding season. The male calls standing on an earth mound, bund, rack or a low tree branch and is soon joined by other birds answering from all directions

• Food and feed :

Grey Francolin on various plants and animals, especially seeds and insects. plants, materials, include grass and weed seed, cultivated grains, buds, flowers leaves, rhizomes, fruits, and berries.

• Lifespan :

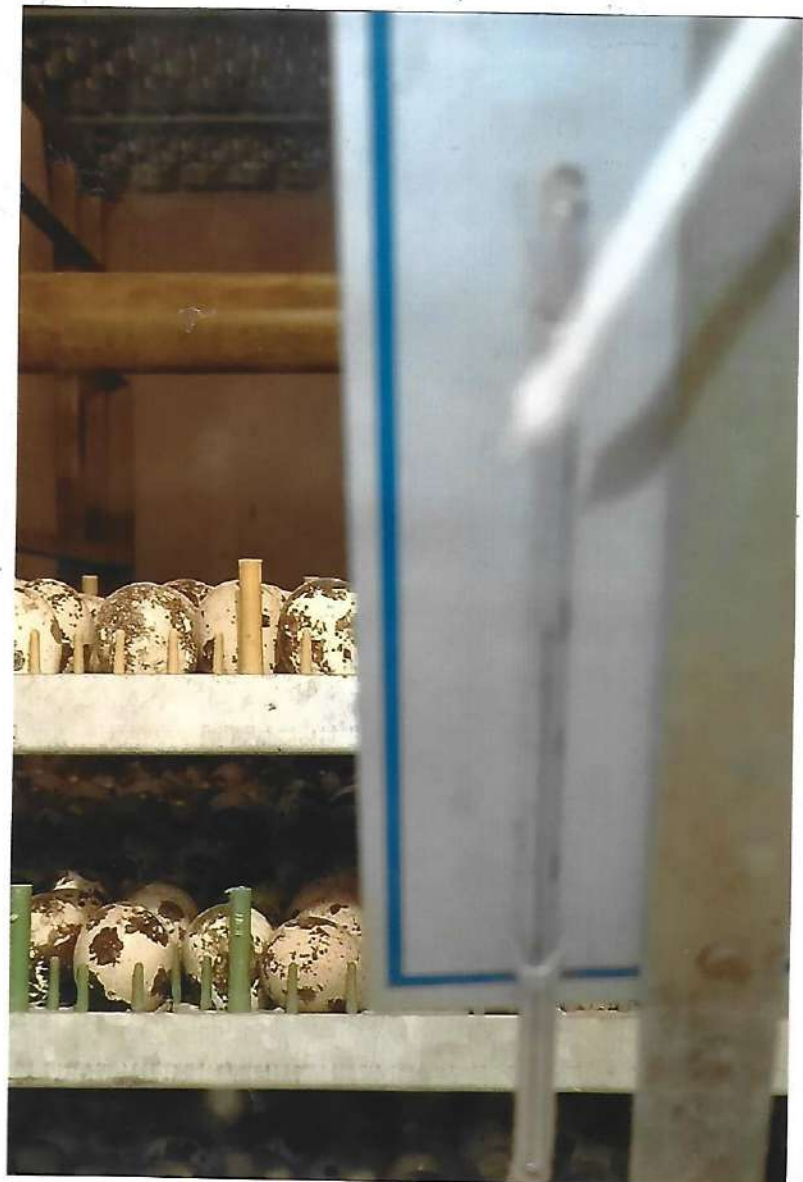
Average lifespan of Grey Francolin is 8 years. They roost at night up in thorny trees and bushes, and will often take shelter into these when harassed in day time.



← Incubator →



Eggs of Grey francolin



Eggs for Incubation

- **Incubator :**

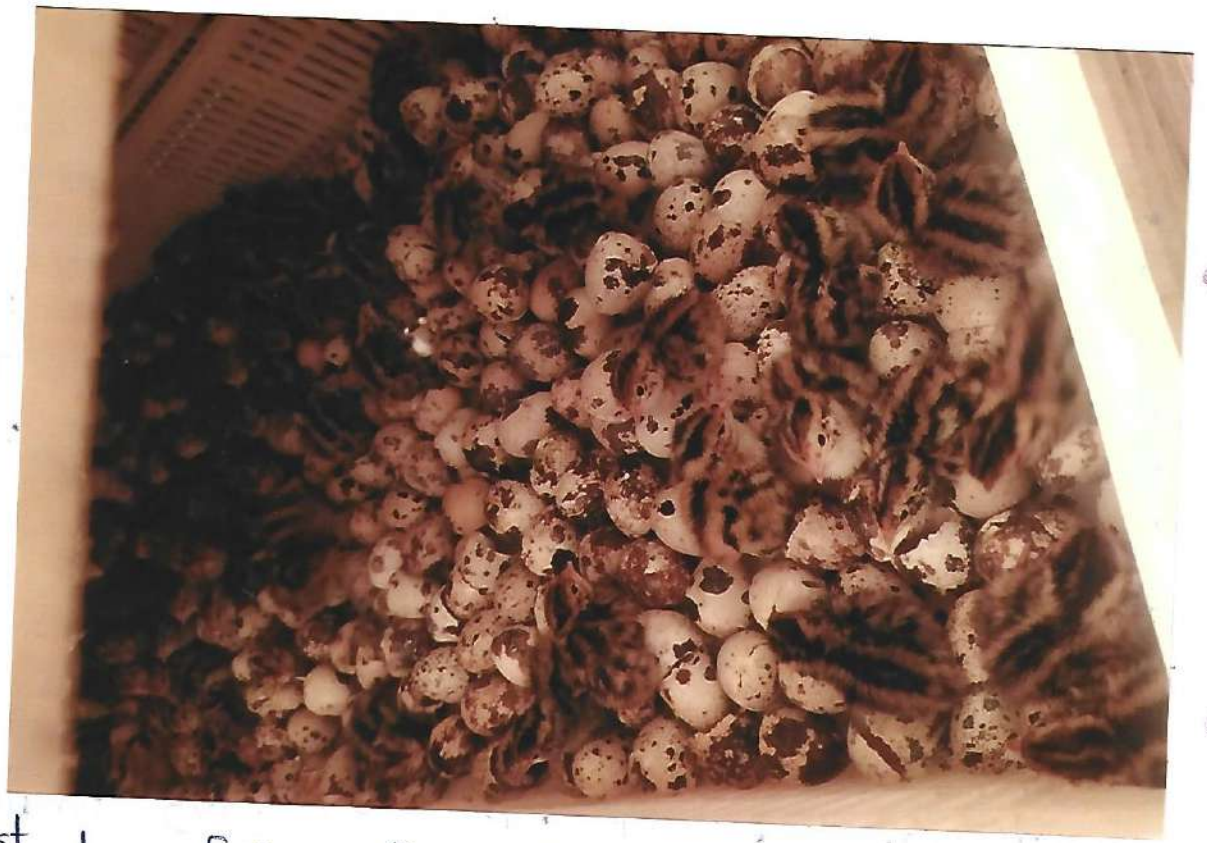
An incubator is a device simulating avian incubation by keeping eggs warm at a particular temperature range (37.5°C) and in the correct humidity with a turning mechanism to hatch ~~the~~ them.

- **Hatching Time :**

Grey fantailin eggs take 23 days to hatch.

- **Egg laying capacity :**

The clutch is six to eight eggs, but larger clutches, potentially reflecting intraspecific brood parasitism, have been noted.



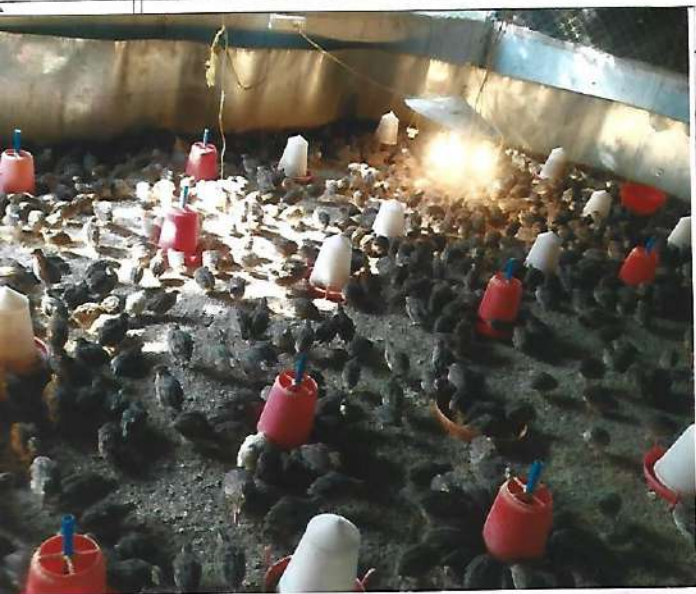
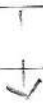
1st day of Grey francolin after incubation



8 Days Grey francolin



20 Day's Grey fencolin



30 Day's Grey fencolin

FOR EDUCATIONAL USE



40 Days Grey Peacolin



Dead Birds

[7-8 birds dead per day due to infection]



Overall arrangement of farm

