

# CONCERNING POULTRY

## BREEDING QUAIL, PHEASANT, PEAFOWL, JUNGLE FOWL AND TURKEYS Part 1

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Photo above: Jeroen Baack.

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*With our thanks to (Wingers Publishing. Branson W. Ritchie, Greg J. Harrison, Linda R. Harrison)*

Some gallinaceous birds, such as turkeys, quail, grouse, peafowl, pheasant and jungle fowl, breed readily in captivity while others rarely reproduce. Breeding failures are an indication that the birds are not happy or healthy, and that the natural conditions of the bird are not being sufficiently simulated. Sometimes pheasant and quail species are approaching a level of domestication that is advantageous for both the captive animal and the breeder.

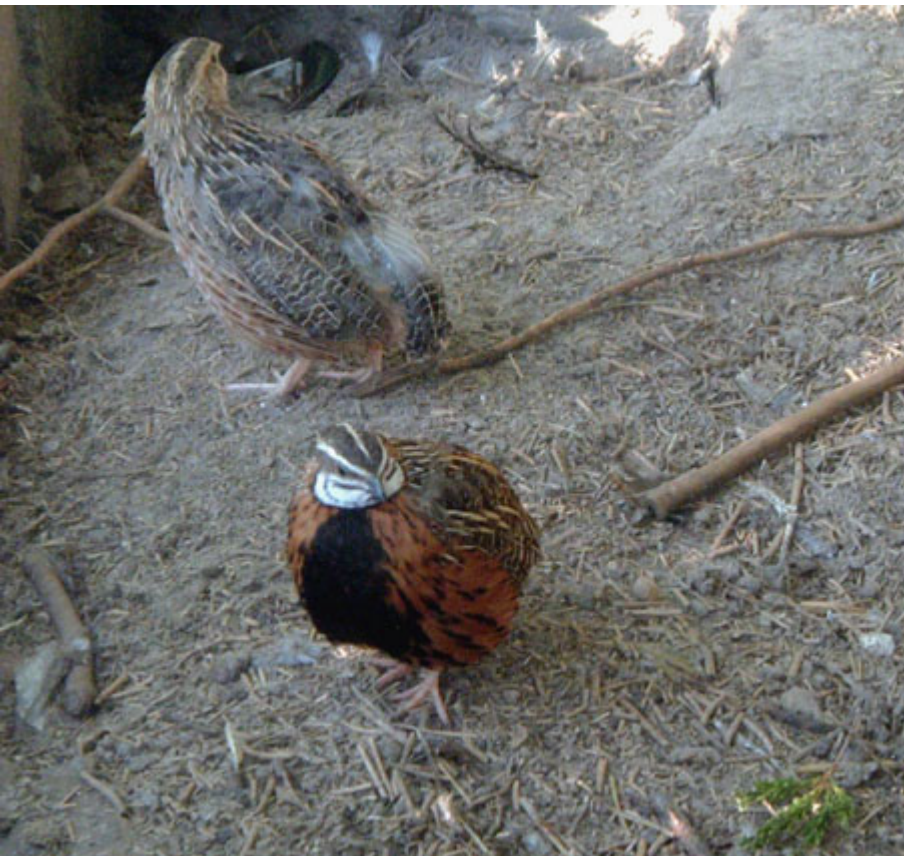
### Specific Reproductive Characteristics

#### *New World Quail*

New World quail are monogamous. Both parents participate in building the nest and brooding the chicks. Young birds are sexually mature by one year of age, in some species even earlier.

**Right: A pair of  
Bobwhite quail.  
Photo: Dirk de Jong.**





Outside the breeding season, the gregarious New World quail live together in large family groups (coveys). At the beginning of the breeding season, the older cocks become very aggressive toward young cocks.

Captive Bobwhite Quail have become polygamous and it is possible to keep one cock with two hens, indicating the effects of domestication.

**Left: A pair of Harlequin quail. Photo: Jan Willem Schrijvers.**

***Pheasant***

Most pheasant species are polygamous. One Common Pheasant cock can be kept with five to six hens. The hens make poor care-providers in

captivity. They tend to be indiscriminant in the placement of eggs and will not incubate the eggs. Young Common Pheasants are sexually mature at one year of age. Free-ranging Golden Pheasants are monogamous, but in captivity one cock can be kept with three to four hens. The hens are exceptional care-providers and defend their chicks. Young Golden Pheasant hens are sexually mature within one year, cocks within two years. Lady Amherst's Pheasant cocks and hens can be aggressive during the breeding season. Only a few of the birds found in captivity are purebred. Both male and female Argus pheasants, Peacock pheasants and the Copper Pheasant establish and defend their own territories.

Males should be introduced to females only for a short time during the breeding season to prevent aggressive behavior and traumatic injuries from both genders.

**Photos right:**

**(L) Lady Amherst pheasant male.**

**(R) Golden pheasant male.**

**Photos: Nico van Wijk.**



Right: Grey Partridge.  
Photo: Jan Willem Schrijvers.

### **Grouse**

Some grouse species like Ptarmigan, Ruffed Grouse, Hazelhen, Spruce Grouse and Blue Grouse are monogamous. In these species, cocks should not be allowed to see or hear other cocks. Hazelhen males may attack the female if a rival can be heard but not seen.

Other grouse species are polygamous. In these species, the hen chooses one cock from a group of displaying males. One cock may be chosen to mate with several hens. Hens in captivity breed best when allowed to choose between two or more cocks. The cocks, which are housed in different compartments of an aviary, may see and hear each other if there are



enough hiding places for the hens.

In most grouse only the hen provides chick care. The chicks of different species can be distinguished by the varying colour patterns on the head and back plumage.

Left: [Click](#) for Hazelhen video.



Most grouse are sexually mature at one year of age. Crossbreeding between different genera and species occurs in free ranging birds. Similarities in the appearance and display behavior of hens seem to induce cocks to crossbreed. Hens will choose cocks of another species if a representative of their own species is not available.

Left: [Click](#) for Capercaillie video.



### **Peafowl**

The Congo Peafowl is monogamous. The nest is always built in a tree. Both parents care for the chicks. The Indian and the Green Peafowl are polygamous. In

captivity it is possible to keep one cock with four to five hens. The hens care for the clutch and the chicks, which mature slowly. Hens reach sexual maturity in the second year and cocks in the third year of life. The Green Peafowl is more aggressive than the Indian Peafowl, but has a more pleasant call.



**Above: Spalding's pea hen with white chicks. Photo: Jonathan Thompson.**

*Jungle fowl*

Jungle fowl can be either monogamous or polygamous. The hens can breed year-round, but the main breeding season is from February to May in the northern hemisphere. A Red Jungle fowl cock can be maintained with three to four hens. The young birds are independent at an age of four months, and sexually mature after the first year.



**Left: Red Jungle fowl.  
Photo: Jan Willem Schrijvers.**

## **Turkeys**

The Common Turkey is polygamous. Behavior of free-ranging birds is dramatically different from that of domesticated breeds. The brain volume of domesticated turkeys is 35% smaller than that of their wild-type conspecifics. The nest is formed of a flat depression in the soil and may be padded with leaves, grass or twigs. The chicks are able to fly at two weeks of age. Several hens, together with their offspring, typically associate in a flock in winter. The young birds leave their mother before the next breeding season. Young turkeys of both species are sexually mature at two years of age.

**Right: A pair of Ronquières turkeys.**

**Photo: Dirk de Jong.**



## **Reproduction**

When we want to breed our gallinaceous birds, we should keep some general considerations in mind. It is best that the birds should be introduced to each other before the breeding season in surroundings that are novel to all the candidates concerned. The female should be introduced to the enclosure a few hours prior to the male.



In some species, it is possible to keep several males together if there are no females present. If females are present, only one male should be housed in an aviary or in one compartment. In monogamous species, only a single pair should be housed together.

**Left: Poult of the Ronquières turkeys.**

**Photo: Dirk de Jong.**

Males of some species are very aggressive, and during the breeding season may attack other males, other bird species or even the keeper. Pursuit by the male and mock escape by

the female is normal behavior in some species like eared pheasants and francolins. If there is insufficient space for the hen to escape, she may be injured or killed by the cock. Densely planted aviaries that provide a hen with areas to hide may still have inherent problems. Fiberglass panels leaned against the wall or concrete tubes provide similar protection and are easy to clean.

For species in which there are substantial differences in body size between the male and female, aviaries can be designed to allow the hens to visit the cock when she wishes. Small holes, just big enough for the hen, are used to connect

adjacent enclosures. This allows the hen to enter the cock's enclosure, while preventing the cock from entering the hen's area. In some species, the hen chooses the most attractive of several cocks and if only one cock is available, breeding may not occur if the hen does not like the cock. In some species, the visual or acoustic presence of other males is necessary to stimulate display and mating behavior.

### **Incubating the eggs**

Most gallinaceous birds incubate eggs on the ground and should be provided with flat trays containing moss, foliage or hay for nesting material. Congo Peafowl, the Bronze-tailed Peacock Pheasant, the Crested Argus Pheasant, the Mikado Pheasant, the Salvadori's Pheasant and the Tragopans nest in trees. A box placed approximately 150 cm from the ground and filled with hay and foliage can be used as an artificial nest. A slanted limb should be provided for easy access to the nest.

Nests of ground- and tree-nesting birds should be inconspicuous to provide the pair with visual security but should be placed such that the birds can easily look out.

If the first clutch of eggs is removed, the hen will often lay a second and sometimes a third clutch. Hatching is genetically determined and should not be assisted.



**Right: Nest and brooding pheasant hen.**  
**Photos: Jan Willem Schrijvers.**

Because gallinaceous chicks are nidifugous, the family can stay together only if all the chicks hatch at the same time. Synchronization of the hatch dates can occur by two mechanisms:

1. The hen does not incubate the clutch until the last egg has been laid, allowing the eggs to cool which slows the process of embryogenesis or;
2. The chicks in a clutch synchronize hatching through audible signals.



This latter process occurs in species like the Japanese Quail. When sounds are heard from other eggs, the chicks increase the speed of hatching. When no sounds are heard from other eggs, the most developed chicks reduce their speed of hatching.

**Left: Eggs of Grey Partridge in an old milk can.**  
**Photo: Jan Willem Schrijvers.**



**Left: Chicken hen fostering a common pheasant chick. Photo: Jeroen Baack.**

### **Foster Breeding**

The hens of some gallinaceous birds are unreliable brooders in captivity. The Common Pheasant and nearly all species of New World quail hens are troublesome brooders in captivity. These hens can be encouraged to produce two or three clutches per year instead of one by using foster parents or an incubator for hatching eggs. Chinese Silk Fowl and Bantams make excellent foster parents. Domestic turkey hens can be used to incubate the eggs of larger gallinaceous birds. Small and fragile eggs should be placed under Golden Pheasant hens, which are cautious brooders and excellent care-providers.

During the last week of incubation, the eggs of tropical birds being raised in dry climates should be moistened with a clean mister once a day.

After hatching, the hen and chicks can be placed in a small enclosure that is movable, and can be placed on fresh grassy areas on a daily basis. Chicks are prone to chilling the first few days post-hatching and must have supplemental body heat from the attending hen.

The disadvantages of foster parenting are:

- Crushing of small fragile eggs by heavy or clumsy adults.
- Premature cessation of brooding if the natural incubation period of the foster hen is shorter than the fostered eggs.
- Trauma or death of the chicks if the hen recognizes them to be strange. (This is a particular problem when behavioral incompatibilities exist between the hen and chicks.)
- Transmission of infectious agents between hen and chicks.

Disease transmission can be reduced by placing the eggs in an incubator for the last third of the incubation period. (This method is often used for grouse.)

Note: For many pheasants, the percentage of carbon dioxide in the incubator must be increased up to approximately 1%, verified with a gas detector, during the last two days of incubation. This is achieved by reducing the intake of fresh air. Chicks should be taken out of the incubator immediately after hatching.



**Right: Bobwhite quail cock with chicks. Photo: Dirk de Jong.**



**Above: Bobwhite quail cock with chicks. The hen died during breeding; the cock took over and is now looking after the chicks. Photo: Dirk de Jong.**

### **Chicks**

During their first few weeks of life, free-ranging gallinaceous chicks feed mainly on live invertebrates like insects, larvae of insects, worms and snails in order to obtain the protein levels needed to sustain rapid growth. Starting at five to six weeks of age, the protein requirements begin to decrease and the in-take of carbohydrates increases to meet energy requirements. By six months of age, most young gallinaceous birds have reached a mass equivalent to that of adults. The quantity of carbohydrates in the diet must then be reduced to prevent obesity.



**Left: Red Jungle fowl with chicks.  
Below: Jungle fowl chick. Note The large wings; this chick is already able to fly!  
Photos: Jan Willem Schrijvers.**







**Left: Peahen with chicks.  
Photo: Monique de Vrijer.**

Feed should be provided to newly hatched chicks on a large flat plate on which they can move around and practice picking. By five to seven days of age, food can be offered in larger containers. The change from the plate to larger containers should occur by offering feed in both containers at the same time. Small chicks may drown in large water containers. Placing stones or glass marbles in the container will reduce losses.

Chicks of unpretentious species (Common Pheasant, peafowl, guinea fowl) are initially fed a starter diet like turkey starter (28% crude protein) and are transferred to a lower protein diet (18 to 20% crude protein) from the eighth to eighteenth week of age.

Chicks of the vegetarian species are difficult to feed. It is best to provide these birds with foods that are similar to those eaten by their free-

ranging conspecifics. A diet composed of turkey starter mixed with mealworms, ant cocoons, chopped hard-cooked eggs, diced romaine lettuce, spinach, dandelion and other green plants is a viable substitute. In several species (some grouse), chicks obtain food by picking at the ground and by cutting off parts of plants with the bill. In these species, it is important that chicks be provided intact plants that are placed in the ground or tied in bundles to facilitate natural food-gathering behavior.

Chicks that are to be released into the wild must be introduced to their natural foods to prevent starvation. Perhaps chicks are imprinted with food shapes and colours, or at the least, they learn what foods to consume from the hen.



**Right: A pair of Congo peacock  
with young.  
Photo: Nico van Wijk.**



**Left: Common pheasant chick. Photo: Jeroen Baack.**

Note: The chicks of some gallinaceous birds will not pick downwards in the first days of life. This is because peacock pheasants, Crested Argus, Great Argus and some other gallinaceous hens feed their chicks for several days after hatching. Argus pheasant chicks can be enticed to pick by offering live food (mealworms). Monal chicks fed mealworms will pick at their sibling's toes.

*Part 2, on Habitat and Nutrition, will be published in our next issue.*

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**Below: Turkey hen with poults. Photo: Dirk de Jong.**



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