



EASTER EGGS



IN THE
WELTVOGELPARK
WALSRODE

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The eggs of the Tinamous

“Tinamou” - No it is not a fancy dessert that has been spelled wrong. Even though they remain little known they are indeed an important group of birds with their own taxonomic order; the Tinamiformes. They may look a little bit like dull chickens and often show a secretive and shy behavior in the wild, but they are so much more than just that.

The Tinamous belongs to a group of birds that everyone knows, they are Palaeognaths! A group of birds that are different from all other living birds and includes, in addition to the tinamous, also ostriches, rheas, emus, cassowaries and kiwis. These birds are the remaining survivors of a once larger group of birds and share several anatomical features, notably in jaw (*gnath*) and foot structure.

**Right: Solitary Tinamou
(*Tinamus solitarius*) in the
Paradise Hall in Weltvogelpark**

Distribution

The Tinamous are very successful in South America; with more than 46 different species they are distributed in almost all habitats from mountain desert to lowland rainforest. But why do they only exist in South-America? Fossil-remains do indicate that tinamous were once distributed throughout the southern hemisphere. Primitive looking tinamou-like fossils with full wings have been found in the



European and North-American region suggesting that the ancestors of tinamous and ratites may have developed in the north and then dispersed south throughout the Gondwanaland.

Diet

Tinamous are not fussy when it comes to food and they will feed on almost anything from insects to roots and leaves. A majority of the diet for most species are small seeds, particularly grass seeds but the species living in a forested environment do have a larger portion of berries and fruit in their diet. Water is important for the tinamous that seem to be drinking at least once daily and they

love to bathe together in a small group. Also sun- and sand-bathing is very much enjoyed, which they seem to extend for as long as possible.



Left: Elegant-crested Tinamou (*Eudromia elegans*)

Social life

It almost looks like the tinamous are experimenting with different social structures; between the different species of tinamous you find all kinds of different mating structures and hierarchies. A few species live in monogamous pairs and aggressively chase others away at least for part of the year, others live in large groups where a seemingly equal number of males and females live and breed together without aggression, a so called polygynandry. Many species form polygynous harems, where the male will attract several females in his area until he has a nest full

with eggs and starts incubating. Thereafter the females will generally leave the area and mate with another male. There is also the polyandrous version, where the female will mate with different males between each egg. In general the female tinamous are larger and more colorful than the males and it is always the males that care for the household business of caring for eggs and young.

Right: Solitary Tinamou in front of its clutch in Weltvogelpark.

The eggs

Indeed the tinamous so have a high reproduction potential and a female can lay more than 200 eggs a year. This is one of the highest reproduction potential in any higher vertebrate. For birds this is only surpassed by the selectively bred modern races of the domestic chicken.

Truly stunning is the structure of tinamou eggs, effectively there is nothing else like it in the avian world. The color varies from species



to species from chocolate brown over emerald green to turquoise blue. In common is the smooth surface; they almost look glazed. Why the eggs are this colorful remains an enigma to science.



Above: Elegant-crested Tinamou (*Eudromia elegans*) with its clutch.

Tinamous in zoos

Tinamous are rare in zoos and currently only 7 species are considered to be kept in European zoos. Concerns have been expressed about the risk of future inbreeding issues as most of these species originate from a very narrow founder pool. In general, in times where ever fewer birds are kept in zoos and often losing out in the competition with standard zoo animals like big cats, primates or large herbivores, tinamous are facing a difficult time as a zoo animal. Further the tinamous is also competing for space with other ground dwelling birds in zoos such as galliformes and waders.

Tinamous in Walsrode

The Weltvogelpark has a tradition in keeping little known species and developing the needed knowhow for the optimized husbandry. Tinamous are a good example of this, as it is a little known family of birds, making them particularly interesting to that cherished group of our visitors who has a special interest in birds. This opens for us the opportunity to also tell the story of these interesting birds to other more generally interested visitors who quickly learn that there is plenty to discover. The rarest species to be seen in the park is the Solitary Tinamou (*Tinamus solitarius*) from the Atlantic Rainforest of Brazil. They are among the largest of the tinamous and lay turquoise blue eggs. The mid-sized Elegant-crested Tinamou (*Eudromia elegans*) is unusual among tinamous with its crest. They live in groups in dense grasslands in the southern part of South-America in Argentina and Chile. The color of their eggs is rich emerald green. The Small-billed Tinamou (*Crypturellus parvirostris*) has a large distribution in woodlands between Brazil, Peru, Bolivia, Paraguay and Argentina. They belong to the smallest tinamous and lay eggs of a dark chocolate brown color.

Breeding Tinamous in Weltvogelpark

The Elegant-crested Tinamou has been kept at the Weltvogelpark since a decade and meanwhile all the individuals kept here also hatched here in Walsrode. Although some species like the large Solitary Tinamou are known to live for up to 15 years in captivity this is not the case in most species. The average lifespan of a healthy Elegant-crested Tinamou seem to be much closer to 4-6 years.



**Above and left:
Young Elegant-crested Tinamou
3 days old in Weltvogelpark.**

In Weltvogelpark Walsrode the breeding of the Elegant-crested Tinamou has been most successful, particularly in recent years as the methods has been optimized. The major issue has been the health of the very young tinamou chicks. We have found that the digestion in the tinamous is very much dependent on a healthy intestinal bacteria-flora. In the wild it is

believed that young tinamous may feed on fecal from adults and this way becomes "infected" with the right bacteria stems. In captivity this has been tried but can also lead to other problems. More recently we have been using relatively high doses of commercial probiotics in the form of Lactobacteria spp. cultures in powder form. This is added to their normal diet of chicken crumble, small seeds and various greens.

**Right: Young Solitary Tinamou approximately
3 weeks old in Weltvogelpark.**

The Solitary Tinamou is a very recent addition to the collection at Walsrode. They have arrived here as a part of a long-term research project being run by our partner organization



the Cracid Breeding- and Conservation Center in Zutendaal, Belgium. So far we have only made limited experience in regards to breeding results, with just two chicks during 2010. Compared to the dull coloration of the adults the chicks have very nice colors and patterns in their first down coat. Like all young tinamous they carry a dense down plumage and are very agile soon after hatching. Because most of the eggs laid by the prolific pairs in the aviaries are not incubated by the parents, they are taken for artificial incubation and hand-rearing. For the Elegant-crested Tinamou the incubation period is between 19 and 21 days. Fertile eggs have a high hatch rate in the incubator and are less sensitive to disturbance and small fluctuations in temperature and humidity than most other bird eggs.

Research into the farming potential of Tinamous at CBCC in Belgium

The potential of Tinamous to serve as food is thanks to their considerable high reproduction rate. Unfortunately wild populations cannot cope with a very high hunting pressure with several examples of local exterminations due to excessive hunting. Therefore, in cooperation with government agencies of different countries in Latin-American, the CBCC is - among other things - investigating the feasibilities in using tinamou-culture as a source of food and income for local communities within tinamou ranges and thereby discouraging the need for hunting the wild populations. This is a multidisciplinary research project that aims to look into long-term reproduction and mortality rates, economical husbandry methods including safe enclosure design, endemic parasites, other health issues, genetic stability and behavior. Reliable research demands a large pool of individual birds and the CBCC has put aside considerable resources in order to develop a large population of around 500 of the near-threatened Solitary Tinamou (*Tinamous solitarius*) and 200 Dark-legged Tinamous (*Crypturellus obsoletus*). This is only possible through targeted breeding and careful strategic

decisions. The choice of these two forest species is due to the fact that they appear to be particular sensitive to excessive hunting and are facing problems in many locations within their natural range. In the future however similar research may well also extend to other species.

Left: Solitary Tinamou with a clutch of eggs in Weltvogelpark.



Endangered Tinamous

Some endangered populations of tinamous are not being monitored continuously and could easily disappear completely unnoticed by science. The protection of tinamous is particular difficult due to the short generation turnover and potentially high reproduction rate. This causes a natural fluctuation in population sizes that is not completely understood. It also means that if the reproduction is hampered by disturbance or even natural disasters such as storms or flooding it could be critical for some populations. Species with very small or local distributions may not be able to recover naturally once their numbers are below the threshold of certain densities.

The Weltvogelpark Foundation seek to secure

long-term protection of endangered tinamous in Brazil and other Latin-American countries through further research into the distribution and the population dynamics of little known species. It is also our goal to support the protection and development of key areas, once these has been identified. One of the major programs that the Weltvogelpark is supporting is the release programs for the Solitary Tinamou in Brazil through the organisation CRAX Brasil. In their facilities a large number of Solitary Tinamous are produced for the purpose of reintroductions every year. In several areas in eastern Brazilian Rainforests the species has disappeared and in many, especially newly reforested, areas the establishment of large ground-living birds is a key component for a healthy ecosystem as they serve not only as seed dispersers but also as serve as food source and are essential for the establishment of large predators. The presence of such birds in an ecosystem is one of the best indicators as to its state. By releasing large numbers, authorities and NGO's in Brazil hope to jumpstart or at least bolster the dwindling populations.



You can also help the Weltvogelpark in saving endangered tinamous and other endangered birds from around the world by dedicating or donating funding for the registered charity Weltvogelpark Foundation, please contact Foundation@weltvogelpark.de

Portrait of Weltvogelpark Walsrode

The Weltvogelpark Walsrode in the heart of the Luneburger Heatlands is the largest and most diverse bird park in the world. In the 24 Hectar large park and garden exhibit area visitors can discover 4.000 birds in 650 different species in their different habitats. In the 2.700 square meter large tropical hall, the exotic birds and



plants as well as the culture of one of the most diverse bird areas in the world can be experienced: The Indonesian archipelago. Another major attraction is the Free-Flight-Hall where visitors can discover birds from various parts of the world in a lush environment with waterfalls and ponds as well as a coastal zone with dunes. The great garden and the numerous rare plants is the second special attraction in the park. The spring flowering extravaganza leaves the Weltvogelpark in a colourful, from bright yellow to dark purple, carpet right from the beginning of the season. In this, one of the most beautiful gardens in northern Germany you always find new impressions in the changing colors of the season.

*In the season 2011 from March 19th to November 1st the park is open daily between 9:00AM until 7:00PM (in periods when it gets dark earlier the park closes at 6:00PM)
Further information under: www.weltvogelpark.de*