

The Taita Falcon *Falco fasciinucha*: Results of a study at Mt. Elgon

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INTRODUCTION

In 1976/77, my brother and I investigated Whale-headed Storks in Uganda. During this period, I visited the area of Mt. Elgon and identified two pairs of Taita Falcons. In 1981, I travelled back to Uganda to study these birds.

The Taita Falcon is slightly smaller than a Peregrine Falcon, but has an altogether more stoutly built body. The wings and tail are proportionally shorter, the frequency of wing beats is higher and the speed in full stoop seems to be faster than that of a Peregrine. The male is more colourful than the female.

The Taita Falcon is one of the rarest falcons in Africa. The first report was from 1895 in the area of Taita, Kenya, since when very few data have been collected. It occurs from Somalia down to Zimbabwe.

The purpose of my investigation was to find out why the Taita Falcon is so rare. To this end, I studied the breeding biology, analysed the prey and did a survey, together with Karsten Otte, on Peregrine, Lanner and Taita Falcons.

STUDY AREA, MATERIAL AND METHODS

Mt. Elgon, a volcanic mountain, is located on the border between Kenya and Uganda. Its peaks tower 3,200m over the surrounding country, which lies at an altitude of 1,300m. The study area was located below the present belt of rainforest, which starts at an altitude of about 2,500m.

For the survey, I chose the north-western square of Mt. Elgon with an area 70km long and 10km wide. At Mt Elgon there are two not very distinct dry seasons, one from December to February, the other from mid-July to mid-August. All data on the breeding biology and the analysis of prey were only collected by observation at one nest site in 1982.

RESULTS

Activities

Except for the reproductive period, Taita Falcons are relatively inactive. Immediately after sunrise they hunt, and on average are satisfied between 9am - 10am. Thereafter, they roost until afternoon. Then often a breeze rises and the falcons begin to circle up in the wind. In the afternoon they

hunt, more frequently than in the morning, from a waiting-on position in the air. In this way, they often hunt insects.

At Mt. Elgon I could find no distinctive breeding seasons for any of the falcon species. In every month of the year one can find pairs in courtship, pairs breeding and pairs with no specific activities.

Reproduction

The pair selected for a study on the breeding biology occupied an estimated territory of 3-4km². They started courtship at the end of February. From the beginning of courtship, the female was exclusively fed by the tiercel.

After feeding the presented food, she encouraged the male to copulate by calling. Another frequent inducement to copulate was the combined chasing of intruders.

The frequency and duration of copulations increased during courtship, at the beginning of which the pair mated 1-2 times per day. After egg laying, the frequency of copulations decreased, the last being observed 14 days after the start of incubation. Whilst the early copulations lasted 2-3 seconds each, at the peak of this activity the duration was up to 18 seconds. From 74 copulations observed, 48 took place before noon, 26 after noon. Courtship lasted up to 5 weeks.

It seemed as if the female was able to induce her mate to hunt by merely calling. Several times she perched near the male and started calling. The male then left and often returned soon after with prey. This behaviour was observed frequently while the birds were rearing the young. When the surviving young was 5 weeks of age, the female started to hunt again.

To avoid disturbance, I did not approach the cliff during egg laying. The start of incubation I determined by the change in the pair's behaviour. From the 4th April, one bird was permanently in the nesting hole.

On average, the tiercel took his turn to brood 3 to 4 times per day. Regularly, the incubation periods for the male lasted from 7 minutes to 140 minutes, the average out of 60 periods recorded being 37 minutes.

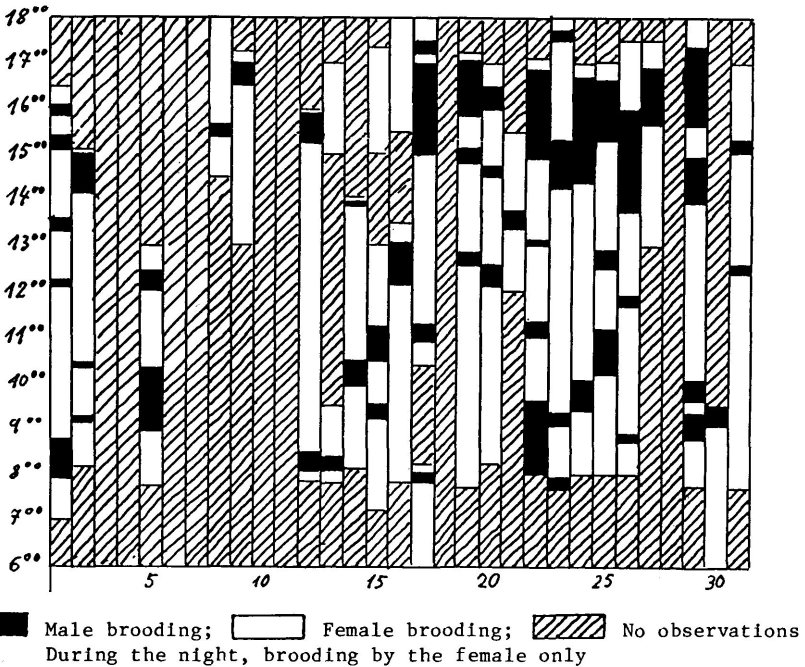


Figure 1. Recorded periods of brooding by male and female Taita Falcons.

The tiercel brooded on average a total of 2 1/4 hours during daytime. At night, the female incubated exclusively.

During the incubation period the prey was not plucked or eaten at the eyrie. For defaecation, the female left the nest. The eyrie with its 3 eggs was kept clean.

The subsoil of the nest site was loosened by frequent raking over. Several times a day the falcons would pull loose material to the eggs with their beaks. It seemed as if the birds collected insects or larvae out of this material at the same time. Larger insects were driven out of the hole.

After 31 days of incubation, the first young hatched during the night (from the palest egg).

One day before hatching the behaviour of the pair changed. In the afternoon the male presented cleanly plucked prey. Hitherto the prey had been more or less unplucked. The female fed at the eyrie, thereby permanently keeping watch on the eggs. The morning after hatching, the female fed the offspring with prey from a food depot, although the tiercel was offering fresh food. If a piece dropped, she ate it.

The following night the two remaining eggs hatched. The interval between the first and second chicks I estimated at 24 hours, and that between chicks 2 and 3 at 4-5 hours. This could indicate a difference in the incubating time within a clutch. From the previous afternoon until 2 weeks after hatching, the male brought cleanly plucked prey.

During the first days after hatching, if the female was absent the male sheltered the young by standing in front of them. From the 7th day onwards he brooded the young. For the first 18 days the young were exclusively fed by the female, after which the tiercel also fed them on rare occasions.

Five days after hatching, rain pelted into the nest. That evening the chicks, as well as the breast and belly of the female, were soaking wet. The next morning she was still brooding and still wet. Two of the chicks lay as if lifeless on their backs. At 9am the female left the nest. In the following 2 hours the male paid 7 visits to the nest, but left again each time.

At 11am I took the two weakest chicks out of the nest, one of which I could save. The next morning the eyrie was empty. I put the only surviving chick back into the nest. Half an hour later, the male arrived with prey, but the chick did not beg for food and the male left again. Soon after that the female arrived. After a feeding attempt she brooded the young chick, which could now be considered really saved.

At the age of 10 days, the second grey down started to sprout. The wing and tail quills began to appear at 2 1/2 weeks. The chick was now left alone for 5 - 10 minutes at a time. Slowly it learned to stand on its feet. From then on the male brought unplucked prey and the female defaecated from the edge of the nest. Frequently she plucked the prey in the eyrie and fed the young.

At the age of 3 weeks the feather quills opened up. In the fourth week, brooding nearly ceased and the female no longer stayed in the eyrie overnight. The young was now able to feed itself.

At the age of 6 weeks, the young fledged. It did not fly voluntarily but, while wandering at the edge of the nest site, slipped off and was able to fly.

One week after fledging, I observed the first food transfer to the young in the air; 23 days after fledging it was playfully hunting insects; 4 weeks after fledging it attacked Fantailed Ravens in play.

Seven weeks after leaving the nest, I observed a food transfer; after 8 weeks the young was still in the parental territory.

Moulting

Fifteen days after incubation started, the female moulted her seventh primary on the left side and, 7 days later, its counterpart on the right. After a further 38 days, both sixth primaries moulted, the new seventh primary having fully grown in the meantime. The male moulted both seventh primaries 8 days after the young fledged.

Hunting and Prey

The Taita Falcon hunts only from the air. The prey ranged in size from sunbird to Green Pigeon. Additionally, it hunts large insects, but these are never fed to the young. The Taita Falcon either hunts from a high vantage point or by circling in the air at a height of 100-200m.

Between 4 March and 20 July I determined the prey, recognising that the prey composition changed in the first third of May.

Prey composition from 4 March to 9 May:-

43.5% swallows, swifts and martins

32.2% indeterminate small birds (swallows, swifts and martins possibly included)
 13.8% indeterminate small birds (swallows, swifts and martins excluded)
 10.5% weaver-like birds.

Prey composition from 10 May to 20 July:-

2.2% swallows, swifts and martins

26.0% indeterminate small birds (swallows, swifts and martins possibly included)

21.0% indeterminate small birds (swallows, swifts and martins excluded) 50.8% weaver-like birds.

Number of prey items observed, 240.

The change in prey composition coincided with the departure of swallows, swifts and martins from East Africa, following which the main prey were weavers, which invaded the cultivated regions in large flocks.

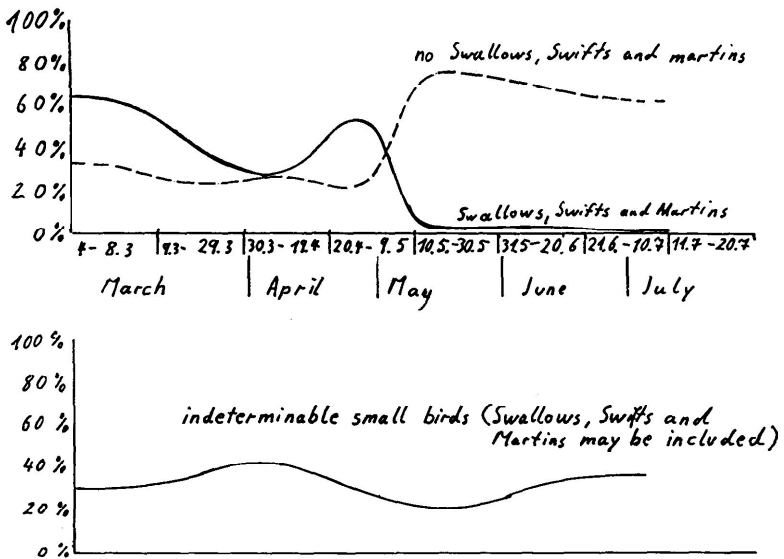


Figure 2 Variation in prey composition of the Taita Falcon between March and July.

SURVEY

For the survey, two-thirds of the study area were investigated intensively, the remaining area was only semi-reviewed.

We found 19 pairs of Peregrine, 5 pairs of Lanner and 4 pairs of Taita Falcons.

According to my observations, the Peregrine Falcon preferred the humid cultivated areas and the Lanner Falcon the dry pasture areas with stock farming. The preferred area of the Taita Falcon could not be clearly defined. Two pairs occupied locations preferred also by Peregrines, the other two pairs occupying locations in a transition area between Peregrine and Lanner Falcon biotopes.

DISCUSSION

Referring back to my original question - the rarity of the Taita Falcon - my data support the following theory.

Food competition with Peregrine and Lanner Falcons can be excluded. The prey composition overlaps insignificantly. There must another reason.

At Mt. Elgon the number of nest sites seemed to be the limiting factor. All three species breed in cliffs, each pair demanding a certain section for nesting. During my census I got the impression that all good nest sites were occupied and that there was no place for resettlements.

Usually the resident pair is the winner in territorial conflicts, because it is far more aggressive than the intruder. If a new pair wants to occupy a nesting site, it has to drive away either a pair of its own species or one of the other two. The Taita Falcon is the smallest of these three species and therefore inferior to the other two.

There is another question: Why does the Taita Falcon exist at all? To answer this, we have to imagine how East Africa looked before man or climate brought about changes.

The gorges, valleys and spurs of the higher mountains were covered with forest, only small remnants of which still exist. In such a biosphere, food for Peregrine and Lanner Falcons is rare. The majority of the birds live in the forest and hardly ever fly over the canopy, except for swallows, swifts and martins. Mountain forests produce a high number of insects, and swallows, swifts and martins can breed in the cliffs within them.

This food supply supported the evolution of the Taita Falcon, but today most of these mountain forests have disappeared. The deforested areas are used as pasture and farmland. New bird species have immigrated, which are of interest for the Peregrine as prey. Because the number of nest sites is limited, the Taita Falcon, in most cases, has to leave.

Also the deforestation of the area and growing intensity of cultivation have possibly reduced the number of insects drastically. This might, in turn, have reduced the number of swallows, swifts and martins, originally the major prey for the falcons. A decrease in food abundance, the changing environment and increasing competition with Peregrine and Lanner Falcons for nesting sites may be reasons for the rare appearance of the Taita Falcon.

I wish to add some general points regarding the situation of birds of prey at Mt. Elgon. In recent years, the human population has increased rapidly and therefore the prey for raptors has disappeared. To cite only one example, in 1977 the rock hyrax was distributed all over the area and some Verreaux's Eagles bred here. In 1982, I could only observe very few hyrax and none of the former breeding sites of Verreaux's Eagles was occupied.

Not only mammals, but birds too are hunted. Children and young people hunt with traps and stone slings. In a few years, many mammals and bird species will become extinct or drastically reduced, so that several predators will disappear from this region.

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