

# THE ELEPAIO

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THE NATURAL HISTORY OF THE HAWAIIAN 'ELEPAIO,  
A REVIEW OF THE LITERATURE  
By Sheila Frings

The genus Chasiempis of the family Muscicapidae (Old World Flycatcher), described in 1847 by Cabanis, is endemic to the Hawaiian chain and represented by three species: Chasiempis sclateri on Kauai, Chasiempis gayi on Oahu, and Chasiempis sandwichensis on Hawaii. Characteristics of the genus include a broad, soft bill with rictal bristles and a long slender tarsus. All three species are commonly called "'Elepaio" and they are quite similar in nearly all respects.

The 'Elepaio is a dark olive-brown bird, about 5.75 inches long, with black mandibles and white underparts except for the black throat in the adult. Its most distinctive markings are the white wing bars and the white rump, both of which are easily seen when the bird is in flight. The immature differs from the adult in having neither the white rump nor the black throat. Characteristically, the immature has an ochreous lower mandible and rufous coloration on the head and neck.

Despite its abundance and approachability, the 'Elepaio has received little attention from field ornithologists. It has, however, been studied more than any other native Hawaiian woodland bird. Much attention is given to its taxonomy in the literature but little is known of its life history, and no significant study of it has been made since Vaughan MacCaughey's monograph on the 'Elepaio was published in 1919.

## TAXONOMY

The 'Elepaio exhibits a great variation in plumage and this has led to much confusion regarding the taxonomic status of the species. At one time as many as five species were recognized and described. For example, Scott B. Wilson (1891) discusses the classification of the species and provides a key to the identity of five species. MacCaughey (1919), in the most recent work on the 'Elepaio, recognizes only the three most generally accepted species and provides a key thereto. H.W. Henshaw (1902a), Walter Rothschild (1893-1900), W.A. Bryan (1901), and E.H. Bryan, Jr. and J.C. Greenway, Jr. (1944) all list and describe the genus and its species.

## HISTORY

The 'Elepaio is the most important native bird from an historical standpoint. As Henshaw (1902a) states, "no bird has more important place in Hawaiian mythology than the 'Elepaio, and omens and warnings were formerly read from its actions and notes." The old Hawaiians regarded the 'Elepaio as a deity or "aumakua." R.C.L. Perkins (1893) gives the best account of its importance to canoe builders: "I had the following anecdote from a native woman in Kona: - 'Of all the birds the most celebrated in ancient times was the "Elepaio," and for this reason. When the old natives used to go up into the forest to get wood for their canoes, when they had

felled their tree the "Elepeio" would come down to it. If it began to peck it was a bad sign, as the wood was no good, being unsound; if on the contrary, without pecking, it called out, "Ona ka ia," "Sweet the fish," the timber was sound."

As George C. Munro (1960) points out, the monthly publication of the Hawaii Audubon Society is named after the 'Elepaio which gets its name from the Hawaiian transliteration of its short song.

#### ECOLOGY

The 'Elepaio has the widest distribution of any native woodland bird, probably because of its adaptability to a wide range of available foods, habitats, elevations, weather conditions and populations of other animals. This is agreed unanimously by all authors who have published works on Chasiempis. Although its range is from 800 feet to the highest limit of the forest, MacCaughy (1919) reports that 'Elepaio are most abundant between the altitudes of 1000 and 3000 feet. As Henshaw (1902b) mentions, they are nonmigratory, remaining in the same locality for years.

According to Perkins (1903), the 'Elepaio feed at elevations ranging from the treetops to the ground. MacCaughy (1919) points out, however, that they feed most often between 6 and 20 feet. Although Henshaw (1902a) believes that the 'Ohi'a and Mamaki are the 'Elepaio's "favorite" trees, Perkins (1903) says that it is "at home" in many of the introduced species of plants showing preferences for those trees with the highest number of insects.

The 'Elepaio, being a flycatcher, is an insectivorous bird. Although reports of nectar feeding have been made, most authors feel that this is unlikely. Insects are foraged from the leaves, branches, and flowers of plants. The 'Elepaio feed on a wide variety of insects: Diptera, including fruit flies, Lepidoptera, Coleoptera, and others. Arachnids, Myriapods, and occasionally slugs are also eaten. MacCaughy (1919) has said that the 'Elepaio is a valuable destroyer of noxious insects. He also noted that the 'Elepaio is a tireless feeder with an extremely varied diet. There is scarcely a time during the day when the little flycatcher is not foraging for food, taking insects on the wing adeptly, sometimes with an audible snap of the bill. Interestingly, Henshaw (1902a) points out that "it never sits and watches for flying insects as do the American flycatchers....by far the greater parts of its insect food is gleaned from the branches of trees and shrubs, and from among the lichens and tangled ferns." It is generally agreed that the 'Elepaio's adaptability to such a great variety of habitats and foods is responsible for the success of the species and its wide distribution. Henshaw (1902a) predicted that: "When most of the Hawaiian birds are extinct the 'Elepaio will long continue to maintain itself in scarcely diminished numbers."

#### BEHAVIOR

The 'Elepaio is remarkably approachable, especially in areas infrequently visited by man. Throughout the literature the curiosity and friendliness of the bird are constantly mentioned. Munro (1960) has noticed that the Oahu species is not as friendly as the other two species.

W.A. Bryan and Alvin Seale (1901) claim that the 'Elepaio "are met with almost invariably in pairs. The ochreous-colored immature birds keeping together and the adult white-rumped ones keeping together...." This is not a commonly made observation by most authors. Flocking is quite common in the non-breeding season.

Seale (1900) had found that the 'Elepaio is a pugnacious little bird, often chasing birds larger than itself from a choice feeding ground. The birds also engage in intraspecific chasing which may be territorial or have something to do with courtship.

It is often said that the 'Elepaio is more a wren-like bird than a flycatcher-like bird. Its habits of sitting with the tail almost vertically cocked, flipping the tail up and down when excited, quivering wings, and flocking during the non-

breeding season account for this statement. Henshaw (1902a) mentions these peculiarities of behavior with interest: "Indeed its resemblance to the wrens is remarkable, especially when it droops its wings by its side and cocks its tail over its back, which is its frequent habit." These traits of the 'Elepaio are invariably mentioned in the works published on the species.

Bryan (1905) reports that the 'Elepaio prefers to nest within hearing distance of other nesting 'Elepaio.

#### VOICE

According to Henshaw (1902a), the 'Elepaio's "name is the native interpretation of its song - if it can properly be called a song - and the bird iterates and re-iterates this all day long. It has, besides, several call-notes, one of which is a true flycatcher-like whit." Perkins (1903) described their vocalizations in this way: "Not rarely, when their excitement is intense, from the scolding note they burst forth into their full song. This consists of three or four whistled notes, and is excellently expressed by the word 'Elepeio,...' These notes are very clear, so that even across the deep gulches of Oahu one can hear the birds on either side responding one to another." Some authors claim that they have heard as many as 14 variations of the basic simple song but none are agreed that a definite number exist.

#### BREEDING BIOLOGY

The only mention of special courtship behavior is by Frank Richardson and John Bowles (1964) who record an instance of courtship feeding by the male of the Kauai species. MacCaughy (1919) says that no special courtship rituals appear to be characteristic of the 'Elepaio.

According to Henshaw (1902a): "The 'Elepaio is the only Hawaiian woodland bird that nests low down habitually." He records one nest at a height of less than two feet, but admits that this is an unusually low height for a nest. Nests are usually placed at heights of from 6 to 40 feet according to Perkins (1903). The nest is well-concealed, as Rothschild (1893-1900) states, and attractively built from leaf skeletons, moss, grasses and lichens bound together with spider web. Bryan (1905) records the greatest variations in nest size; he also found more nests placed in an upright two- or three- pronged fork than on a lateral branch among supporting branches. Nests usually measure 3 inches in height and width with a cup 1.8 inches in depth and width.

Henshaw (1902a) is the only author who reports that nests are often placed in a small tree in the shade of the forest. Apparently there is no preferred plant in which 'Elepaio nest.

Perkins (1893) and Bryan and Seale (1901) believe that the breeding of immature birds is indeed rare. On the other hand, MacCaughy contests this in stating that the 'Elepaio "not uncommonly pairs and breeds before assuming the mature plumage." The birds breed monogamously although new mates may be found each year (MacCaughy, 1919). How many broods they raise per season is not known.

The nest is built by both the male and the female, but the female takes a more active part. Little information on actual nest building activities is to be found in the literature; Bryan (1905) discusses nest construction very briefly.

A two-egg clutch is most usual. However, Henshaw (1902a) reports that he saw three-egg clutches. The most accurate description of egg measurements is given by Alfred Newton (1897). He reports the length to be from .82 to .87 inches and the diameter to be from .58 to .62 inches. Perkins (1903) describes the coloration of the eggs as "whitish, variably marked with reddish brown spots."

The only mention of incubation or care of the young is by Rothschild (1893-1900): "Palmer found a nest on which he caught the adult male. This fact and also that he saw both parents feed their young clearly indicate that both sexes take part in incubating the eggs and feeding the young." Palmer was employed as a field

## FOR JUNIOR MEMBERS:

Field Notes from Thane Pratt, Kamuela, Hawaii, post marked April 10, 1967

I have been able to do a lot of birding, especially in the rain forests behind the school. The forest is separated from the school by about a mile of pasture land and it's a tiring uphill walk to get there. The best birding is done where the streams cut gorges in the mountain side. We have 'i'iwi, 'apapane, 'amakihi, creeper(?), and 'elepaio plus the usual number of introduced birds. The 'i'iwi are my favorite. During my eighth grade year (I am now in the tenth) there used to be one young bird that always followed me for about a hundred yards on one side of the largest stream. Never fearful and always curious he would silently appear from nowhere, escort me through his territory and leave as silently as he had come. I rarely saw the adult birds, even though they were noisy and easy to track down. I once got a glimpse of a young bird in "half and half" plumage. 'Apapane and 'elepaio are all over and easy to find. The 'amakihi-creeper situation is a difficult one. We do have 'amakihi. Of this I am sure, because I sometimes see a green bird with brilliant yellow underneath and a curved bill. But we also have a bird that is all olive-green, which gets paler on its belly, has a curved bill, and travels in loose flocks among the branches searching for insects in the bark. May be these are female 'amakihi or creeper. I am not sure yet. They are very pugnacious and can often be seen chasing each other through the forest. Three weeks ago I found a nest which contained four white eggs with brown spots on the big end. The last time I checked the nest, I found 2(?) young 'apapane(?) both dead in the nest.

This winter I went to Pololu and Waipio valleys with one of the faculty members. Although Waipio didn't hold much except numerous "auku'u and a pair of hawks, I found Pololu fascinating. There were several pairs of hawks and white-tailed tropicbirds nesting on the cliffs. I have not been able to explore the head of this valley which I think holds a great many native birds.

The third place I have been able to explore is Mt. Hualalai above Kona. I've done this twice with one of our faculty members, his wife, and some friends. The first time we took the road near Kealakekua and drove until we reached a spot about 1500 feet below the summit. Here we ate lunch on a bare cinder cone and watched the five nene that had come to visit us. One didn't have a leg band. Next we drove down about 2,000 feet to where there were the remnants of a koa forest. We saw a herd of sheep and a pair of hawks with their nest. Incidentally they were opposite phases. I wanted to stay longer, but we had to get down before dark.

The second time we went up the same way and camped at the foot of the cinder cone mentioned above. This was in February, so there were no nene. It was so cold that after several hours of "sleeping" my quilt was drenched with dew which made it even colder. By dawn, with about an hour sleep behind me, I was thoroughly frozen, and there was frost on the ground. I rose to the bugle of hundreds of pheasants and the songs of just as many cardinals. The entire morning we drove around looking for game and saw several herds of sheep and five pigs. The return trip was dull for the fog had rolled in, but we did see a pair of both chukar and Chinese quail. Of the forest, or what we could see of it, there wasn't much, because of the lava but there was a lot of scrub 'ohi'a, koa, mamane, and naio. We stopped at about the 4000-3500 feet level to open a gate, so I climbed out of the jeep to pick banana liliko'i. The native birds were all over, so I stopped for a moment to look around, when out of the fog buzzed a medium-sized finch with a large bill. There was something unusual about him, so I grabbed my binoculars and sure enough, a green form dove into a bush some 25-40 feet in front of me. I was stunned. I watched the bush for a few minutes hoping he would come out. But he was gone, so I went back to the jeep, and we wended our way down the mountain. I thought about him the whole way back to school and could not come up with any other bird except the Kona Finch (*Psittacirostra kona*). The only possible birds resembling this one would be the Koa Finch or one of the imported birds. The former is too large and the latter have bills that are too small.

The next evening I phoned my parents and told them about the expedition, giving them the bird's <sup>old</sup> scientific name (*Chloridops kona*). They then went to a copy of

parents, Dr. Konrad Lorenz suggests.

"They're so easy to settle. They stay sexually normal and reproduce, but they become imprinted on you as the foster mother," he said. "It would be a sure-fire success-- I've done the same thing repeatedly with other geese species."

THE SUNDAY SUN, Vancouver, B.C., Weekend Magazine, Vol. 17, No. 10, March 11, 1967, pp. 2-4: Dr. Konrad Lorenz, THE ANIMAL IN ALL OF US. An authority shows how much man hold in common with the lesser creatures of nature. By Robert McKeown (Jane Solamillo's contribution)

In a tree-enclosed Bavarian meadow recently, a bearded man of kindly appearance called "KOM, KOM, KOM" in a commanding tone that carried beyond the woods to a nearby lake. A few moments later, small formations of wild geese came winging over the trees, some of them to alight only a few yards from where we stood together.

The man was Dr. Konrad Lorenz, an Austrian regarded by many as being the greatest living authority on animal behavior. He is a scientist whose discoveries and theories have brought about a vastly greater appreciation of how much human and animal societies have in common. They have also provoked considerable protest.

For many people it comes as a shock to find that we share with other animals such "human" pretensions as social class and status-seeking. Our marriage and mating customs--including infidelities and perversions--are held in common with lesser creatures.

It is especially upsetting to learn from Dr. Lorenz that we are among the few animals callous enough to kill their own species. Wolves, lions, and tigers are far more humane than we....

As he throws handfuls of grain to the geese in the meadow, Dr. Lorenz carefully observes who takes precedence over whom, who pecks and who gets pecked.

Spinsters and bachelors, Dr. Lorenz has learned, rank low in goose society. But a bachelor who marries and raises a big family, especially if he fathers plenty of vigorous ganders, will soon be highly regarded by his fellows. The spinster who marries will immediately take on the social rank of her husband--and she will be fully aware of her change of status....

Dr. Lorenz delights in telling stories which may appear to apply human motives to animal behavior. But the scientist's point is that what we call "human weakness" is something that we share widely with other animals. Much of man's behavior is based on inheritance from his animal ancestry....

As we talked I noticed that a big Canada goose, a gander, remained constantly by the side of Irene Wurdinger, one of Dr. Lorenz's graduate students. At times he seemed almost to be trying to talk to her....

"He has been imprinted on Irene," Dr. Lorenz explained. "He thinks she's his mother."

The study of "imprinting" is one of the scientist's research projects. This procedure arises out of the fact that newborn goslings appear to regard the first living thing they meet as their mother. Miss Wurdinger was on hand when this Canadian gander opened his eyes for the first time and she thus became imprinted on him. Now he is prepared to follow her almost anywhere.

The big Canadian is very jealous of humans when they are with Miss Wurdinger, particularly of Dr. Lorenz. When the doctor approaches he glares and makes intimidating noises.

"I wonder if he will attack me if he thinks I'm hurting her?" Lorenz said.

He grasped Miss Wurdinger by the jacket and pretended to shake her. The gander immediately ran toward them but continued on past them. Surprisingly, he pecked and chased Tuti, a snow goose.

"You can see he is afraid of me." Dr. Lorenz said, "but he has to take his hostility out on someone. So he picks on poor Tuti. He's like the clerk who's angry at his boss but works it off by bullying the office boy."...

Among geese there are divorces, extra-marital affairs and cases of homosexuality. There are female flirts who will attract the husband of another goose and arrange for a rendezvous some distance from his home. There are playboys who take a long time to settle down to a quiet family life....They appear to be very human in their

mating habits. There is a period of courtship and a betrothal that is followed by the establishment of a family home. When a mate dies, the other mourns the passing with a clearly identifiable grief. But a goose that is widowed or divorced several times may soon display a great boldness in sexual relations and enter into many casual liaisons.

"We keep the marriage histories of our geese, who gets betrothed and to whom," Dr. Lorenz said. "It did not occur to us earlier to see who flirts with whom first. But we are finding that there is a tendency for geese to come back to the ones with whom they first flirted."

Geese, in common with many other birds and mammals, occasionally will fall in love at first sight....Now it seems that a gander who merely flirted with a goose as a youth may return as an adult and fall deeply in love when he meets her again.

During his second year the gander will start to follow his intended love from a distance. He will begin to make angle necks at her and if she responds with coy glances he knows she is interested. To further attract her attention he may pick fights with other ganders and chase them off. He makes her know that he will be a good protector....When her enthusiasm in neck dipping is as great as his own he gets the message. They are engaged. Now they swim side by side and cry in triumph together. Before long they will be mating and protecting their nesting area against all others....

As we walked back through the woods to his chalet, Lorenz remarked that most house pets provide uninspiring company. It has long been his belief that the closer an animal remains to its wild state, the more interesting it is to observe.

But Lorenz, a man of wide sympathies, would concede that almost any pet is better than no pet at all. To him the important thing is that all of us should come to understand something of the wonderful world of nature of which we are a part....

THE SUNDAY SUN, Vancouver, B.C., Weekend Magazine, Vol. 17, No. 11, March 18, 1967, pp. 18-23: Dr. Konrad Lorenz, THE DEADLIEST ANIMAL AND HIS BEST FRIEND. It isn't flattering but that's how a noted Austrian expert on animal behavior regards man and his dog. By Robert McKeown (Jane Solamillo's contribution)

...The fact that many of us do not recognize how many instinct and behavior patterns we have in common with other animals has helped to put humanity itself in danger....Man's superior mental capacity has enabled him to develop weapons capable of destroying all human life. At the same time he has an aggressive drive, inherited from primitive ancestors, which would enable him to use the weapons to do just that....

It is Dr. Lorenz's theory of aggression, as developed in his new book, ON AGGRESSION, that has caused more comment and discussion than anything he has written. To Dr. Lorenz man is not a naturally good creature who has been corrupted by his environment, as some philosophers have believed. Rather, man has inherited instincts of aggression from his animal ancestry which make him one of the most violent of animals.

The scientist includes aggression among the four basic animal drives, along with hunger, love, and flight. He is particularly concerned with aggression or fighting within a single species, rather than against other species....

Dr. Lorenz points out that aggression within a species serves many useful purposes: the strongest have their choice of mates; the home territory and its food supply are protected; the brood is raised in safety; common enemies are repulsed. At the same time he has noted that the more aggressive an animal and a species are, the greater is their capacity for friendship....Thus aggression is a natural drive that serves many useful purposes. What is disturbing is to learn that man is among the few social animals whose aggressive instinct permits him to kill his own species.... This lethal aggression toward our own kind is something that we have in common with the rabbit and the dove--the latter, ironically, the symbol of peace. These reputedly gentle creatures are capable of causing great injury to each other.

Fortunately the annihilation of one's own kind is not general. Two wolves will fight bitterly but when one feels the other has the upper hand, he will turn his neck to the victor in a gesture of defeat. The stronger wolf does not take this

opportunity to make the death attack. Rather he allows his victim to slink away.

(However, in captivity--as with caged animals or with fish in an aquarium--escape is not possible and death may result from a fight. It is also disheartening to learn, in this age of an exploding world population, that when overcrowding occurs animals quickly lose their normal inhibitions.)

Some animals indulge in ritual fights that avoid the necessity of maiming. For instance, marine iguanas have teeth which could cause terrible wounds were they to be used in a fight. Accordingly they wrestle each other and never use their teeth for so much as a nibble....Apparently many animals, unlike man, have developed inhibitions against using their lethal weapons against their own kind. Through the process of natural selection, this was essential to prevent the species from being wiped out.

Why, then, has man not developed a similar restraint?

Dr. Lorenz's answer is that our distant ancestors were not of themselves fearsome creatures. They did not have the natural weapons--claws, horns, and teeth--which made such inhibitions necessary. Consequently, they did not develop them.

But over the years man has invented increasingly lethal weapons--spears, arrows, bullets, nuclear bombs. Now because he does not have this instinct of mercy toward rivals of his own species, all of mankind is in danger.

Dr. Lorenz hopes that the fear of self-destruction may cause us to face up to the biological facts about ourselves. An optimist, he believes that the dangers may be lessened if enough people recognize the roots of their own behavior. For man does not have the time to develop this inhibition as have other animals. That is an evolutionary process that would take time in astronomical terms....

About 31 years ago, Dr. Lorenz wrote in a Vienna publication:

"The day will come when two warring factions will be faced with the possibility of each wiping the other out completely. The day may come when the whole of mankind is divided into two such opposing camps. Shall we then behave like doves or like wolves? The fate of mankind will be settled by the answer to this question."

These words seem more prophetic than ever today. With the world much closer to the day of decision than when he wrote, Dr. Lorenz's question still awaits an answer.

HORIZON, Spring 1967, Vol. IX, No. 2, pp. 60-64: KONRAD LORENZ by Edmund Stillman.

Few men have founded a new science, Lorenz is one who has--the science of ethology, which has a good deal to say about the sources of human aggression.

According to ancient legend, murder came into the world east of Eden when Cain took up a spade and struck down his brother Abel....The beast in man...broke through the barriers of specifically human--HUMANE--inhibition and the result was murder.

But...according to Konrad Lorenz...the real culprit was the spade! If men remained more or less weak, slow-moving, vegetarian beasts bereft of fang and claw and incapable of striking down an enemy by a single deadly blow, Abel...would simply have run away from his angry brother. It was the spade, an artificial weapon, that upset the balance of nature--converting man from a species essentially harmless to itself, to a race of deadly fratricidal killers. Unlike man, strong, savage beasts of prey such as the lion, the wolf, and the eagle, Lorenz says, very rarely commit fratricide....

Together with his close friend and associate Niko Tinbergen of Holland, he is usually credited with establishing the "new" science of ethology; that is, the comparative study of the behavior of animal (and men) in their natural surroundings....

Competitiveness, or aggression, then, can be lethal when it is uncontrolled or extravagant. Yet aggression is so basic to the mechanism of natural selection that "Nature" simply cannot afford to do without it. A species devoid of all aggression would soon die....According to Lorenz, aggression in animals, and man, is in the normal course contained by two processes. The first is simple redirection--against an enemy, another competitive group, perhaps, or toward inanimate objects if need be. The second method, by far the richer in possibilities, is what the ethologists call ritualization. Here, Lorenz claims, man and beast join.

It is in the concept of ritualization that Lorenz and his school are most

