

## Has the Red-billed Leiothrix Disappeared from Kaua'i?

by Timothy D. Male<sup>1</sup> and Thomas J. Snetsinger<sup>2</sup>

### Introduction

The Red-billed Leiothrix (*Leiothrix lutea*) is a small songbird in the Babbler subfamily (Muscicapidae: Timaliinae) native to India, Tibet, Burma, China, and Vietnam and introduced to the Hawaiian Islands of Kaua'i, O'ahu, Moloka'i, Maui, and Hawai'i earlier this century. Today, the leiothrix is a common bird in introduced and native forests on most of these islands. It subsists on a diet of introduced and native fruits and invertebrates, and nests in the lower strata of dense vegetation. There is little published information on the ecology of Red-billed Leiothrix in Hawai'i. It breeds between March and August (Fisher and Baldwin 1947, Berger 1977). Outside this period, birds form wandering flocks (Fisher and Baldwin 1947). Scott et al. (1986) provide data on distribution and abundance on Kaua'i (absent), Moloka'i, Maui, and Hawai'i based on systematic surveys, and reported densities exceeding 400 birds/km<sup>2</sup> in some areas. These surveys showed that this species is primarily limited to habitat above 1,000 m elevation. Although they found populations at lower elevations, Scott et al. (1986) theorized that persistent high temperatures inhibit long-term survival in the lowlands.

Perhaps the most interesting facet of leiothrix history in Hawai'i concerns their decline on O'ahu (Williams 1987). In the 1950s, Christmas Bird Count (CBC) data showed the species to be one of the most common birds on O'ahu. However, beginning in 1958 the population declined drastically until almost none were detected on CBCs or during other field trips and surveys (1960–1975; B. Pyle pers. comm.). Many believed that leiothrix would die out on O'ahu (Williams 1987, Scott et al. 1986). Then, in the mid-1980s

the species began increasing in abundance and can again be found in most valleys and forested ridges in the Wai'anane and Ko'olau Mountains (B. Pyle and E. VanderWerf pers. comm., TJS pers. observ.).

Leiothrix also have an interesting history on Kaua'i. A breeding population quickly established itself on the island following introduction there in 1918 (Caum 1933), but declined equally rapidly and was rarely seen from the 1940s through the 1970s. We believe that since 1974, the breeding population of this species on Kaua'i has been extirpated.

### Methods

We compiled data on the leiothrix population on Kaua'i from a number of sources, including the published literature ('Elepaio 1939–1997 and cited sources); the Sightings database at the B. P. Bishop Museum; field surveys conducted by TJS (1992–1997); Christmas Bird Counts (1971–1976, 1982–1996); and the unpublished records of 14 experienced observers.

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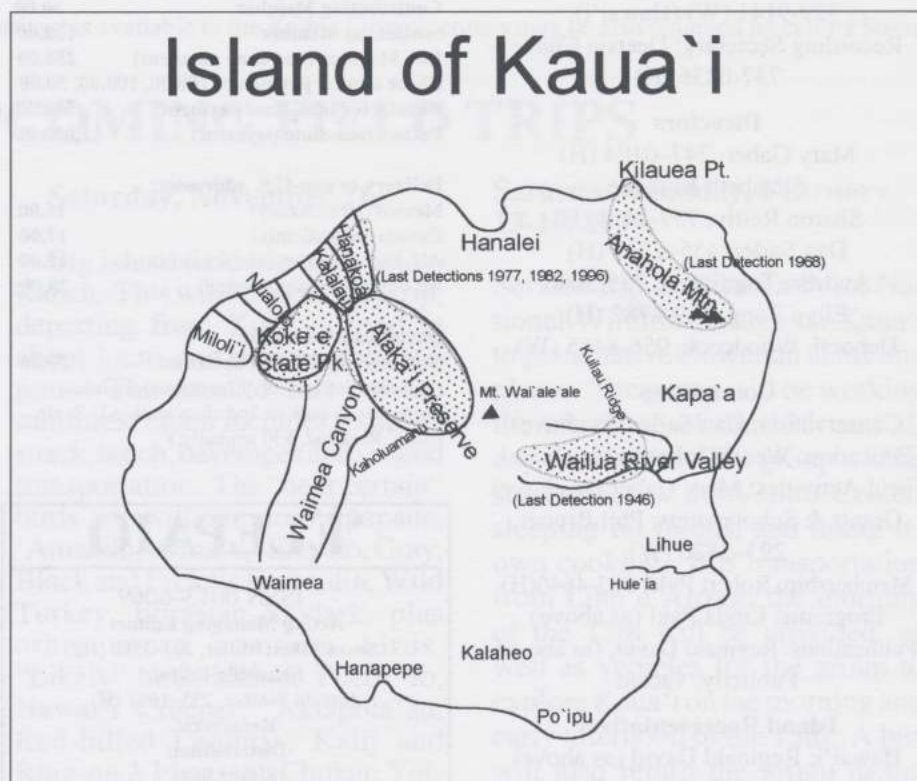


Fig. 1. Map of Kaua'i with reference locations. Shaded areas indicate areas in which Red-billed Leiothrix have been seen since the 1940s. Dates are last reported sightings for corresponding area.



## Results

Red-billed Leiothrix were first reported as well established on Kaua'i and found in "large flocks" before 1933 (Caum 1933). Unfortunately, few observers reported bird sightings from Kaua'i in the following decades, and most of those records do not include sightings of introduced species. Visual or auditory detections occurred in only 17 of the 39

accounts from 1933 to 1997 (Tables 1 and 2) Leiothrix have been reported from three general areas: Koke'e/Alaka'i, Kilauea/Anahola, and Waialua (Figure 1).

Eleven leiothrix were seen on a single CBC in 1974 in the Waimea count circle (which includes Koke'e), Kaua'i, but none were observed during CBCs in 1973, 1975-76, or 1982-1996 (B. Pyle pers. comm.). They have never been detected

on either the Lihue or Kapa'a CBCs (1971-1995) (B. Pyle pers. comm.). The 1974 CBC sighting appears to mark the end in a relatively long series of periodic detections.

More recently, TJS has spent more than 4,000 hrs (1992-97) conducting searches for Kaua'i's rarer native birds, observing and surveying both native and introduced forest birds (Tables 2 and 3). He has never detected this species on Kaua'i. Other observers with many years of bird observation experience on Kaua'i have also failed to find this species since 1974 (D. Boynton, J. Denny, D. Jamieson, D. Kuhn, and T. Telfer). Additionally, other experienced observers (T. Casey, S. Conant, R. David, S. Hess, J. Jeffrey, J. Lepson, D. Pratt, and E. VanderWerf) have not located this species during periodic visits to potential habitat on Kaua'i.

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## 'ELEPAIO

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## Discussion

In the 64 years since they were first described as established on Kaua'i (Caum 1933) there has only been a handful of reported sightings of Red-billed Leiothrix. No nest has ever been found, nor have recently fledged individuals ever been described. Although proving the complete absence of a species is impossible, we believe that no breeding population now exists on Kaua'i.

While few, the documented sightings since 1933 indicate the presence of an established population. The large population estimated by Sincock et al. (1984) on Anahola Mountain indicates a breeding population there in 1968. Whether these birds were descendants from the original introduction or a newly established population is not certain.

The Red-billed Leiothrix is a popular cage bird and periodic escapes or intentional releases may result in the establishment of new populations that or may not persist depending on the number of founders and their reproductive success. Occasional introductions such as these could account for the infrequent reports of this species since the mid-1970s (Table 1). Similar situations have occurred with Red-billed Leiothrix in Great Britain, Germany, and Hong Kong where the species was also released. In these locations, observers have occasionally seen wild

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Table 1. Published and unpublished records of Red-billed Leiothrix on Kaua'i: 1933–1997.

Date	Location	Description	Source
pre-1933	Kaua'i	"Large flocks"	Caum 1933
9/4–9/9/46	Wailua Valley and Alaka'i	1st auditory, 2nd visual	Pearsall 1946
Summer 1960	Edge of Alaka'i -1150 m	9	Richardson and Bowles 1964
Sept. 1960?	Kalalau Valley	"Fair numbers"	B. Richardson <i>in</i> Richardson and Bowles 1964
11/6/67	Kilauea Point	sighting	Donaghho 1968
6/11–6/19/68	Koke'e	detection	Sincock et al. 1984
6/24–6/29/68	Alaka'i	detection	Sincock et al. 1984
7/28–8/2/68	Anahola Mt.	many detections	Sincock et al. 1984
7/9–7/12/68; 5/25/69	Alaka'i	detection	Sincock et al. 1984
5/8–5/21/70	Alaka'i	detection	Sincock et al. 1984
10/20, 10/21, Prior to 1973	Koke'e	detection	Sincock et al. 1984
1/2/73	Koke'e	detections	T. Telfer pers. comm.
1974	Koke'e	detection	Sincock et al. 1984
1974	Waimea Count Circle	11 seen, CBC	B. Pyle pers. comm.
5/12/77	Koke'e	1	Pyle 1977
8/10–8/13/82	Kalalau and Hanakoa Valley	detections	P. Bruner, Bishop Museum Database
10/96	Koke'e	detection	P. Bruner pers. comm

Table 2. Published and unpublished records noting absence of Red-billed Leiothrix on Kaua'i: 1933–1997.

Date	Location	Description of Effort	Source
1941	Koke'e, Kalalau Valley, and Kaholuamanu	3 weeks	Donaghho 1941
1943	Koke'e	1 week	Northwood 1943
3/23–4/14/58	Surveys of Kaua'i	3 weeks	Eastman and Eastman 1958
1967	Koke'e	10 days	S. Conant pers. comm.
1968–73	Alaka'i, Koke'e, Lowland forests	43 survey transects requiring 1–7 days each	Sincock et al. 1984
9/6–9/7/69	Miloli'i and Nu'alolo Valley	2 days	Berger 1981
1970–97	Mostly w. Kaua'i, Alaka'i, and Koke'e	Resident birder	J. Denny pers. comm.
1970–79	Island wide/concentration in native forest	Extended periods in field	D. Pratt pers. comm.
7/3–7/13/70	Alaka'i	10 days	Kaigler 1970
1971–75 CBC	Kapa'a, Lihue	CBC	B. Pyle pers. comm.
8/14–8/18/71	Waimea, Hanalei, and Koke'e	4 days	Mull and Mull 1971
1973	Waimea Count Circle	CBC	B. Pyle pers. comm.
1973–97	Island wide	Resident biologist	T. Telfer pers. comm.
1974–97	Broad coverage entire island	Resident birder	D. Boynton pers. comm.
1975	Alaka'i	1 week	S. Conant pers. comm.
1975–76	Waimea Count Circle	CBC	B. Pyle pers. comm.
1980–97	Island wide/concentration in native forest	Annual trips of several days each	D. Pratt pers. comm.
1980–96	Alaka'i, Koke'e, lowland forests lowland forests	5 trips totaling 17 days	J. Lepson pers. comm.
1981	Alaka'i and Koke'e	1,000s of person hours	Scott et al. 1986
1982–96	Waimea Count Circle	CBC	B. Pyle pers. comm.
1987–97	Kalaheo, lowland areas, Koke'e, etc.	Resident birder	D. Jamieson pers. comm.
1989–97	>80% Koke'e, Alaka'i. Some lowland.	Resident birder, 1,000s of person hours.	D. Kuhn pers. comm.
1992–97	Island wide see Table 3 for details.	Totaling >4,000 hrs. of field observation	TJS pers. observ.



birds, and even found nests but no self-sustaining population persists (Long 1981).

It is also possible that rare sightings of leiothrix are the result of colonizations from other islands by wandering flocks or individuals during the non-breeding season. Postbreeding flocks may range well outside their breeding range. These flocks move into subalpine scrub on Mauna Loa (Conant 1975) and are regularly seen above 10,000 feet elevation on Mauna Kea, Mauna Loa, and Haleakala in autumn (Montgomery and Howarth 1980, Distasio 1997). Further, they may be partly migratory within their native range in China (Caldwell and Caldwell 1931). There are, however, no substantiated records of leiothrix moving between islands. Further, Babblers as a group are poor island colonizers with none naturally established on oceanic islands or even east of Wallace's Line (Sibley and Monroe 1990). Movements of this type are likely to occur in species which fly high above the canopy and can easily get caught in high winds (e.g., 'I'iwi, 'Apapane, 'O'u). Low-flying species, such as the leiothrix, are much less likely to make such movements over open water, but they still may occur. The appearance of Japanese Bush-Warbler (*Cettia diphone*) on Hualalai on the Big Island may be the result of such a dispersal (Nelson and Vitz 1998).

The Red-billed Leiothrix may persist in low numbers somewhere on Kaua'i. A similar situation occurred on O'ahu

where the population crashed between 1958 and 1968 and only a few individuals were seen in the following decades in valleys on the eastern and western flanks of the Ko'olau Mts. (Shallenberger 1976, Williams 1987). Still, despite extensive recent surveys done by TJS and other biologists no remnant population has been found, suggesting the species is no longer present on Kaua'i.

Sightings of this introduced species, which is common on most Hawaiian Islands, may have gone unreported in the past. We encourage anyone spending time on Kaua'i to look for this species. Pratt et al. (1987) and Hawai'i Audubon Society (1993) provide detailed descriptions and illustrations of this species, but the Red-billed Leiothrix is most often detected by voice. The song is very melodic, but can be confused with the song of the Hwamei (*Garrulax canorus*) and White-rumped Shama (*Copsychus malabaricus*). Leiothrix chatter calls are similar to vocalizations of the 'Elepaio (*Chasiempis sandwichensis*). *Voices of Hawai'i's Birds* (Pratt 1996) has excellent recordings of the Red-billed Leiothrix and potentially confusing species. Most sightings of this species are from the Koke'e area, and it should be looked for there. However, limited access and generally poorer coverage of middle elevation habitat, particularly on windward Kaua'i, make this the most likely location to be harboring a remnant population.

## Acknowledgments

We thank Bob Pyle and the Bishop Museum for use of their Sightings database and for sharing information from Christmas Bird Counts. David Boynton, Phil Bruner, Tonnie Casey, Sheila Conant, Reggie David, Jim Denny, Steve Hess, Dean Jamieson, Jack Jeffrey, David Kuhn, Jaan Lepson, Doug Pratt, Tom Telfer, and Eric VanderWerf graciously shared information concerning their sightings or lack of sightings of this species during the last three decades. Christina Herrmann, Steve Hess, Gerald Lindsey, Doug Pratt, John Simon, Tom Telfer, and Bethany Woodworth provided helpful comments on a previous draft of the manuscript.

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Table 3. Description of field effort by TJS 1992-1997.

Location	Dates	Effort	Description
Koke'e Area	Jun 1995-Oct 1997	>100 days	Recreational birding
Sincock's Bog, Alaka'i Swamp	April 1994	5 days	Forest bird monitoring survey
Raingauge Bog, Alaka'i Swamp	Jan 1993	5 days	Forest bird research
Koai'e/Mohihi Area, Alaka'i Swamp	Apr 1994; Jun 1995-Oct 1997	400 days	Forest bird research
Kalaheo area	Jun 1995-Oct 1997	10 days	Recreational birding
Hule'ia area	Jan, Oct 1992; Apr 1994; Jun 1995-Oct 1997	20 days	Recreational birding
Kilauea area, Anahola mtn and adjacent forest	Jan, Oct 1992; Jan 1993; Apr 1994; Jun 1995-Oct 1997	20 days	Recreational birding
Wailua River Valley (Kuila trail, Keahua Arboretum, Wailua River)	Jan 1992; Jan 1993; Apr 1994; Jun 1995-Oct 1997	15 days	Recreational birding
Na Pali coast (Hanakoa, Kalalau valleys)	Jan, Oct 1992; Jan 1993; Apr 1994	15 days	Recreational birding



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# Hawaii Audubon Society's 60th Anniversary is coming!

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Join your fellow members at McCoy Pavilion:  
bring something for the potluck, we'll supply the liquids.

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- > A panel of long-time members will fill us in on HAS history we've forgotten--or never knew.
- > We'll be giving our hard-working members and community friends awards for their service to the environment.

November 1999 will be the 60th anniversary of the first issue of the 'Elepaio; that month was also taken as the HAS' founding month when the 50th anniversary of the Society was celebrated in 1989. Help kick off HAS' 60th anniversary celebration !



## SLATE FOR 1998 ELECTION ANNOUNCED:

### Members encouraged to submit additional nominations

The Nominating Committee announces the following nominees for the 1998 HAS ballot for two-year terms beginning January 1999: President, Wendy Johnson; Second Vice President, Elizabeth Kumabe; Recording Secretary, Sharon Reilly; Directors Deetsie Chave and Mary Gaber (incumbents). Also nominated to one-year Director terms are: Tonnie Casey, Luisa Castro, Jordan Jokiel, Col. Larry Kimmel, and Kris Matsumoto. (Elizabeth Kumabe has been a Director since January 1996, while Sharon Reilly joined the Board in January 1998, also as a Director.)

Continuing Board members are First Vice President John Harrison, Treasurer Reginald David, and Directors Dan Sailer and Andrew Tomlinson; their terms will all be completed in December 1999.

The Society bylaws (Article VII, Section 4) provide that members may nominate additional candidates by submitting their names in writing, along with their written consent to be nominated, to the Elections Committee at the HAS office address **by November 10, 1998.**

## Office Corner

### Contact us via cyberspace!

Since mid-September, HAS has had electronic mail (e-mail) capabilities. Our address is: [hiaudsoc@pixi.com](mailto:hiaudsoc@pixi.com)

We can send out membership applications, publications order forms and information, and O`ahu and all-island birding guides upon request, but without graphics. We`ll also respond to any correspondence sent by e-mail.

Menehune are working on a web page; when that happens, we`ll have graphics and can send out the *'Elepaio* to those members and subscribing institutions who wish it in that form, saving printing and postage costs.

### Changes at the HAS office

Susan Miller will be leaving the Society in mid-October. Please welcome Linda Shapin, who will be the Administrative Assistant

Susan has volunteered to continue as acting *'Elepaio* Managing Editor for the near future and also to work on the membership database, so she`ll still be around.

## James Campbell National Wildlife Refuge Open to Public!

by Margo Stahl, Assistant Refuge Manager, U. S. Fish and Wildlife Service

How would you like to gaze out across an unobstructed landscape filled with wondrous birds and wetlands? While sitting in a kiosk you can watch nature without intrusion and learn about wildlife. It`s available for viewing in your neighborhood! The U. S. Fish and Wildlife Service invites you to visit the James Campbell National Wildlife Refuge (NWR) near Kahuku, Oahu. Refuges offer places for wildlife and to coexist safely. The only system of federal lands devoted specifically to wildlife, the National Wildlife Refuge System is a network of diverse and strategically located habitats.

The refuge is the premier site for increasing populations of Hawaii`s four endangered waterbirds: the Hawaiian stilt (Ae`o), the Hawaiian moorhen (Alae`ula), the Hawaiian coot (Alae ke`oke`o), and the Hawaiian duck (Koloa maoli). You can see other birds including migratory species such as Northern Pintails, Northern Shovelers, Lesser Scaup, Wandering Tattlers, Ruddy Turnstones, Sanderlings, and Bristle-thighed Curlews.

The James Campbell National Wildlife Refuge has been in existence since 1976, but public activities have not been widely advertised. The Refuge now offers a regularly scheduled guided tour of its Kii Unit every Thursday afternoon from 4:00-6:00 p.m. from September through February 15th, as well as on two Saturday afternoons each month. This is the time during which stilts aren`t nesting and public use is least likely to intrude upon or disturb the wildlife. To reserve your place on a tour, please call Assistant Refuge Manager, Margo Stahl, at the refuge office in Haleiwa (808-637-6330) or write Oahu National Wildlife Refuge Complex, 66-590 Kamehameha Hwy., #2C, Haleiwa, Hawaii 96712.

There is no entry or user fee. A limited number of special use permits for non-guided wildlife observation or environmental education are also available during the week by calling or writing the refuge office. Don`t miss this new opportunity to see one of Oahu`s best kept secrets!



# KAWAI NUI EDUCATION CENTER MOVING FORWARD

(adapted from news release distributed Friday, September 4, 1998)

The Hawaii Audubon Society, on behalf of itself, the Kawai Nui Heritage Foundation, 'Ahahui Malama I ka Lokahi, and the Conservation Council for Hawai'i, is applying to the Board of Land and Natural Resources (BLNR) for a 50+year renewable lease on a 5-acre parcel alongside Kawai Nui Marsh. The parcel is located at the end of Ulukahiki Street below Castle Hospital overlooking the area that will be restored waterbird habitat. The parcel is presently part of Revocable Permit S-6844, held by Martin and Mae Knott. The Education Center will be used as a meeting and staging area for environmental and cultural programs in the Marsh area. The partnering organizations are currently seeking private sector funding to build infrastructure and develop ongoing programs that will support, enhance, and cherish the world-class resource that is Kawai Nui Marsh.

A culmination of years of discussions, community activities, and plans for Kawai Nui Marsh, the Education Center will utilize the wealth of natural and cultural resources in the Marsh and its great potential to serve as a living classroom. One of the recommended actions of the "Resource Management Plan for Kawai Nui Marsh" (State of Hawaii, 1983) was to develop interpretive educational programs and centers. The "Kawai Nui Marsh Master Plan" (State of Hawaii, 1994) identifies educational opportunities as one of the community values offered by the existence of the Marsh and mentions educational use at several proposed implementation sites.

A draft Environmental Assessment, filed with the Department of Land and Natural Resources early in September, describes the initial stage of the project. A covered, open sided kiosk will be constructed to provide an assembly area for environmental and cultural education programs for all age groups. These programs, based upon the natural and cultural resources of Kawai Nui Marsh, will include classes, public lectures, tour orientation, demonstrations, and docent and teacher training programs. A combination restroom/office/storage facility and parking area will also be developed on the parcel. A demonstration taro lo'i is planned for the portion of the parcel nearest Maunawili Stream.

To carry out the environmental and cultural activities mentioned above, the Education Center will take advantage of the entire Marsh area. For example, small projects will make use of and/or protect three sites: Na Pohaku O Hauwahine, the Kaha Park end of the flood control levee, and Mokulana. In addition, one or more boardwalks would provide public access while preserving the integrity of the Marsh. Donated materials and volunteer labor will be used for the projects.

A copy of the draft Environmental Assessment is available in the Kailua Library; copies may be also obtained by calling Susan Miller at HAS (528-1432).

## UPCOMING FIELD TRIPS

### Saturday, October 24:

Visit the 'Ewa Plains limestone sinkholes with Dr. Alan Ziegler to look for fossils of extinct Hawaiian birds. Dr. Ziegler will lead us on a short walk from the Barbers Point Deep Draft Harbor to the sinkholes, sharing information about the geology along the way. Carpool at 8 a.m. on the Punchbowl side of the State Library at King, or meet at the Harbor on Malakole Road at 9 a.m. Bring sunscreen, hat, water, and, if you like, a picnic lunch to eat at Barbers Point Beach Park. Digging tools will be provided. Suggested donation, \$2.00 per person.

### Saturday, November 21:

Big Island field trip to Pu'u O'o Ranch. This will be an all-day trip, departing from Kona Airport at about 7 a.m. and returning about 6 p.m. The tour to this private rainforest ranch includes morning snack, lunch, beverages and ground transportation. The "near certain" birds we will see are 'Apapane, 'Amakihi, 'Oma'o, 'Elepaio, Gray, Black and Erckels Francolin, Wild Turkey, Eurasian Skylark, plus other more common birds. "Likely" birds include Pueo, 'Io, Hawai'i Creeper, 'Akiapola'au, Red-billed Leothrix, Kalij and Ring-neck Pheasant, Chukar, Yellow-fronted Canary, and California Quail. Limited to 10 persons.

### Saturday-Monday, February 13-15, 1999:

Service trip to Kilauea Point National Wildlife Refuge on Kaua'i to plant native Hawaiian shoreline plants. The group will be working the afternoon of the 13th and all day on the 14th. The group will be staying below the Visitor Center, sleeping on futons, and doing its own cooking. Bus transportation from Lihue Airport the morning of the 13th will be provided, as well as vehicles for the group to explore Kaua'i on the morning and early afternoon of the 15th. A bus will also return the group to the airport.

*For more information and reservations for all three trips, call Mary Gaber, evenings only, at 247-0104.*





OCTOBER 1998

# 'ELEPAIO

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## Calendar of Events

**Thursday, October 1**  
**Education Committee** monthly meeting, 7 p.m. at BaLe Sandwich Shop in Manoa Marketplace (near Safeway). For more information, call chairperson Wendy Johnson, 261-5957.

**Monday, October 12 and November 9**  
**Conservation Committee** monthly meeting at the HAS office at 5:45 p.m. For more information, call chairperson Dan Sailer, 455-2311.

**Monday, October 12 and November 9**  
**HAS Board** meeting, always open to all members. 6:30 - 8:30 p.m. at the office.

**Monday, October 19**  
**HAS membership meeting and program** will feature Dr. Lenny Freed of the U.H. Zoology Department with a slide-illustrated presentation on "Bright Females: Fitness and the Significance of the Hawaii `Akepa to Evolutionary Biology and Conservation." Contrary to expectations, the brightly-plumed `Akepa females have

demonstrated higher instead of lower fitness. Dr. Freed will also discuss the significance of old growth forest through the eyes of the `Akepa, the evolution and extinction of the Hawaiian honeycreepers, and why remote Hawaii, with its gradation of old to young islands, is a premier location for the study of evolutionary biology. He will focus on the importance of habitat to native forest birds, and why these birds, and the secrets they reveal, are too interesting to let go extinct. Join us at Paki Hall Conference Room, from 7:30 - 9:30 p.m. Refreshments provided; HAS books tapes & t-shirts will be available for purchase.

For information on the following activities, please see page 46.

Saturday, **October 24**: Ewa Plains limestone sinkholes **field trip**.

Saturday, **November 21**: Big Island **field trip** to Pu`u O`o Ranch

Saturday -Monday, **February 13-15, 1999**: **Service trip** to Kilauea Point National Wildlife Refuge on Kaua`i

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