Journal of the Hawaii Audubon Society

For the Protection of Hawaii's Native Wildlife

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National Audubon Society 111th Christmas Bird Count Results for the Hawaiian Islands

The National Audubon Society holds their Christmas bird Count every year from December 14th through January 5th. We want to thank all of those that participated in the 111th count and invite everyone to join us for the 112th count that seems to be coming up rather quickly! Contact us if you are interested in becoming a part of the oldest and largest citizen science event to take place.

This year we were able to increase counts from last year with Maui, Oʻahu and the Big Island each having two counts while Kauai and Molokai each had one count and 3 of the NW Hawaiian Islands held counts this year as well! For more detailed information about the Christmas Bird Count results including the day, times, and weather conditions visit the National Audubon www.audubon.org/bird/cbc

~ .	Hawai'i		Kauai	Molokai	Oahu		Maui	Pu'u
Species	North Kona	Volcano	Kapa'a	Kualapu'u	Honolulu	Waipio	I'ao Valley	O Kaka'e
African Silverbill	5			2		2		
Akaipolaau		12						
American Green-winged Teal				10		2		
American Wigeon						1		
Apapane	183	846		61	6	57	84	
Barn Owl								
Black Bellied Plover							2	
Black Francolin				27				
Black Noddy				38	12			
Black-crowned Night-Heron	12		26	4	45	6	55	
Blue-winged Teal								
Bonaparte's Gull								
Brant			2					
Bristle-thighed Curlew				10	2	1		
Brown Booby			25					
Bufflehead			2					
Cackling Goose			1					
California Quail								
Cattle Egret			123	13	169	180	82	
Chestnut Munia			19		25	163	6	
Common Myna	10	2	375	247	580	565	94	5
Common Peafowl								
Common Waxbill					270	222		
Erckel's Francolin						6		
Eurasian Wigeon								
Gray Francolin				14	1	12	9	
Greater White-fronted Goose						1		
Great Frigatebird			17		9			
Hawai'i Akepa		1						
Hawai'i Amakihi	93	269		1				

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Species	Hawai'i North Kona	Volcano	Kauai Kapa'a	Molokai Kualapu'u	Oahu Honolulu	Waipio	Maui I'ao Valley	Pu'u O Kaka'e
Hawai'i Creeper		5						
Hawai'i Elepaio		96						
Hawaiian Coot	10		135	91	69	116	71	
Hawaiian Duck			280					
Hawaiian Duck X Mallard (hybrid)					215	20	2	
Hawaiian Goose		2	346					
Hawaiian Hawk	1	1						
Hawaiian Moorhen			310		32	4		
Hawaiian Stilt	38		197	230	135	108	264	
House Finch	13	19	273	67	102	184	39	7
House Sparrow	1	20	3	15	91	75	1	33
Hwamei			25					
I'iwi		192						27
Japanese Bush-Warbler			22		5	11		
Japanese White-eye	10	295	208	154	279	160	7	1
Java Sparrow	4		17		72	98	20	
Kalij Pheasant	3	29						
Large Gull sp								
Laughing Gull				1	1		2	
Laysan Albatross			143		2			
Least Sandpiper								
Lesser Scaup				1				
Long-billed Dowitcher						5		
Mallard					65	1	54	
Mariana Swiftlet								
Masked Booby								
Maui Amakihi								23
Maui Alauahio								6

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Species	Hawai'i North Kona	Volcano	Kauai Kapa'a	Molokai Kualapu'u	Oahu Honolulu	Waipio	Maui I'ao Valley	Pu'u O Kaka'e
Mourning Dove						6		
Northern Cardinal	9	49	29	6	40	22	8	
Northern Mockingbird				1				
Northern Pintail				13		21	60	
Northern Shoveler				12		10	64	
Nutmeg Mannikin		2	57	16	5	13	5	
Oahu Amakihi					14	9		
Oahu Elepaio						1		
Omao		178						
Pacific Golden-Plover	8		266	90	432	341	14	2
Peregrine Falcoln								
Red Avadavat					8	2		
Red Junglefowl		1	89	11	7		2	
Red-billed Leiothrix		59				10		
Red-crested Cardinal			57	21	49	84	8	2
Red-crowned Parrot						2		
Red-footed Booby			1006		568			
Red-masked Parakeet					48			
Red-vented Bulbul					390	122		
Red-whiskered Bulbul					141	27		
Ring-billed Gull								
Ring-necked Duck								
Ring-necked Pheasant								5
Rock Pigeon			10	18	203	18		
Rose-ringed Parakeet					24	8		
Ruddy Turnstone	13			21	317	60	28	
Saffron Finch	4	2			4	29		4
Sanderling	5				3	31	37	
Short-eared Owl								
Sky Lark				15		10		3
Spotted Dove	10	3	100	102	319	228	3	8
Wandering Tattler	8		3	1	16	3	5	
Western Meadowlark			15					
Western Sandpiper						1		
Whimbrel				1				
White-faced Ibis			2			2	2	
White-tailed Tropicbird			10	13				
White Tern					5			
White-rumped Shama			28	35	53	16		
Wild Turkey		2						
Yellow-faced Grassquit						1		
Yellow-fronted Canary	3				16			
Zebra Dove	45	8	284	315	542	648	39	2

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Northwest Hawaiian Islands

Species	French Frigate Shoals	Laysan Island	Midway Atoll
American Green-winged Teal			4
Black Noddy	34	23	7
Black-footed Albatross	1580	22271	23814
Black-footed Albatross X Laysan Albatross (hybrid)	1	3	
Bonnin Petral		5000	3
Bristle-thighed Curlew		12	31
Brown Booby	2	48	6
Brown Noddy	11	16	
Cattle Egret			3
Common Cannary			823
Common Myna			309
Eurasion Wigeon			2
Gadwall			8
Glaucous-winged Gull			2
Great Frigatebird	744	547	10
Laysan Albatross	2466	170091	438382
Laysan Duck		60	92
Laysan Finch		126	
Lesser Scaup			1
Masked Booby	55	49	
Northern Pintail			28
Pacific Golden-Plover	63	99	166
Red-footed Booby	1418	74	
Red-tailed Tropicbird	8	1	
Ruddy Turnstone	295	934	122
Sanderling	9	10	
Short-tailed Albatross			1
Tristam's Storm Petral		8	
Wandering Tattler		30	6
White Tern	18	25	305

HAS Field Trips

Sunday June 26 Honolulu Zoo behind the scenes of the bird exhibit tour

Limit 12 please sign up at the HAS office 528-1432 hiaudsoc@ pixi.com small fee \$4.00

Saturday June 25, 2011 8am-1:30 Moanalua Valley with Na Ala Hele

Meet at 1849 Ala Aolani St Trail maintenance until 11:30 Lunch & Elepaio watching until 1pm

Limit 25 people must rsvp by June 23th

Work site will be ~1 1/2 mile in, participants will walk in or be shuttled. Bring water, lunch, binoculars and tools (handsaw or clippers) contact Kristen Mailheau 808-554-4999 to sign up

Saturday July 16th Service trip to My Ka'ala on Oahu

limit 12

please sign up by July 1st

call HAS office at 528-1432 or email at hiaudsoc@pixi.com

Saturday, August 20th Hilton Hawaiian Village

Meet 10 am at penguins Sign up with Alice Roberts at 864-8122

Saturday September 10th Welcome back Shorebird Paiko Laggon Lagoon walk

730 @ Kuli'ou'ou Rd sign up with Alice Roberts 864-8122

"Pigeon Biset" (French) The Rock Dove (Columba livia)

By Ron Walker

What could possibly be of interest when profiling pigeons (or Rock Doves as the American Ornithologists Union calls the wild versions)? They surround us in the cities, are associated with droppings on buildings, can be pests in agricultural areas and can transmit diseases to humans. But dig into their history and private lives and fascinating details emerge.

They are among the oldest, most widespread and adaptable birds on the planet. The earliest fossils were found in Jordan and Palestine 300,000 years ago (Johnston, 1992). Although originally native to Europe, North Africa and Asia, Rock Doves , or domesticated and feral versions thereof, are now found all over the world except in barren deserts and polar regions (Del Hoyo et al, 1997). Wild birds were domesticated over 5,000 years ago, readily become feral in nature, and are most happy in the company of man.

Domestic pigeons were introduced to Eastern North America in the early 1600s by colonists. "Pigeons" of an unknown species were either introduced to Hawaii as a possible game bird through private means from China in 1788 or feral pigeons became common in the wild as a result of escapes from



domestic stock in 1796 (Walker, 1967). They are now common on all the main islands and can achieve high populations, especially in cities. Fleischer et al (1987) estimated 21,138 pigeons in Waikiki of which 10,490 pigeons were in the Honolulu zoo alone!

In Hawaii law, the rock dove is listed as a game bird and was once hunted heavily at wild roosting sites and along flight routes. But the season

has been closed for some time now to protect domestic birds and homing pigeons which are raced by clubs. However, State administrative rules allow the destruction or control of pigeons which constitute a nuisance or which damage "crops, vegetative habitat, or native plants". Permits prescribing the method of destruction or control are issued after an investigation is completed.

Most people are familiar with their courting habits, especially when observing males bobbing, weaving and rotating with a female during mating rituals. But unless you are fixated on pigeons, you may not notice the snapping of beaks, hissing, clapping of wings (often in flight creating an audible sound) and stomping of feet, one foot at a time. Another habit is sunning

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Membership in Hawaii Audubon Society 2011

Regular Member:	\$ 25.00	Foreign Membership (Airmail)	
Student Member:		Mexico\$ 26.00	
Supporting Member:	\$100.00	Canada\$ 28.00	
Family Membership	\$40.00	All other countries \$ 33.00	
	nembership dues, valid Jo ns are tax deductible and	anuary 1 through December 31. d gratefully accepted.	
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Phone	Email		
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Please make checks payable to Hawaii A	audubon Society and mai	l to us at 850 Richards St., #505, Honolulu, HI 9	681

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by first sitting, then rolling to one side, spreading the wing and tail, erecting the rump feathers and staring hypnotically at the sun (Johnston, op cit). Unlike most birds they do not drink by taking a mouthful, raising the head and swallowing, but by inserting the bill and sucking directly from the water source (Johnson et al 1975).

Pigeons are monogamous, pair for life, breed year-round, can breed from 6 months to a year after hatching and can produce up to 5 broods a year (Del Hoyo, et al op cit). During incubation, males usually sit by day and females by night. In the wild, nest sites are usually crevices in rock faces but man has conveniently constructed buildings which mimic such natural habitats for nesting. In Hawaii they also nest in date or coconut trees and lava tubes. Young are fed through the production of fat and protein rich "milk" produced by the lining of the crop and stored in its' side pockets. Unique among birds, young dip their heads into the throat of the adult to consume the milk and eventually partially digested vegetative matter (Perrins et al 1979).

Pigeons are probably most famous for their homing abilities which were utilized by the ancient Egyptians as well as modern man during world wars as "carrier pigeons" to transmit messages. This inherent ability probably arose from their habit of finding their way back to roosts from distant foraging areas. Navigation is probably accomplished through a variety of means including orientation to the magnetic fields of the earth, the sun and stars, landmarks and even smell (Wikipedia, the free Encyclopedia; Johnston op cit). The use of these birds to carry messages has declined with the expansion of the internet, but the Taliban banned their use in Afghanistan.

The bad and the good about pigeons? It is true that their droppings can be a health hazard to humans, that they can transmit diseases such as psittacosis, salmonella, encephalitis and histoplasmosis (Fleischer et al op cit), that they often damage agricultural crops and that they spread weed seeds. But they are also good scavengers, eating almost anything edible. And the use of pigeons as experimental study animals over the years has produced an increase in human knowledge of flight mechanics, thermoregulation, water metabolism, endocrinology, sensory perception, orientation, navigation, learning, behavior and evolutionary biology (Johnston op cit).

Athough pigeons often bring up negative thoughts, it appears that they have, at least, paid their debt to society.

Pigeon Facts

- 1. For flying, they sport large pectoral muscles which take up $1/5^{\text{th}}$ of their weight.
- 2. In flight they use \(\frac{1}{4}\) of the intake of air for breathing, but \(\frac{3}{4}\) for flying.
- 3. They have no teeth; a gizzard containing bits of stone (grit) for grinding seeds and plants eaten does the job.
- 4. Their skull is light; weighing only1/5th of 1% of the body weight.
 - 5. Pigeons "blink" using a third eyelid called the nictitating

membrane. This protects them from wind, water, debris and dust in the air (sunglasses?).

- 6. They have a good sense of touch due to a spongy, swollen and sensitive tactile area behind the nostrils on the bill called an operculum.
- 7. Their hearing is not acute. Humans can hear between 20-1700 cycles per second, while pigeons can perceive only 200-1500 cycles per second.

Source: Thompson, A.L. 1964. A New Dictionary of Birds. McGraw-Hill Book Company. New York. NY.

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UPDATE Spring 2009 HAS Research Grant Recipient Riley Bernard, UHH

Potential dietary overlap between the invasive coqui frog (*Eleutherodactylus coqui*) and the endemic Hawaiian hoary bat (*Lasiurus cinereus semotus*) on the Island of Hawai`i

The purpose of this study was to determine if the presence of an invasive insectivorous frog had the potential to compete with the endemic Hawaiian hoary bat. The Hawaiian hoary bat (*Lasiurus cinereus semotus*), known locally as the <code>□pe</code> ape a, is the only endemic terrestrial mammal on the Hawaiian Islands and is federally listed as endangered due to the limited knowledge of the species. Basic data regarding the ecological requirements and behaviors of the bat are minimal. Although this bat is a foraging generalist, it is still quite vulnerable to competition due to its ability to cover large foraging range in a short period.

The invasive species I chose to examine was the coquí frog (*Eleutherodactylus coqui*) an extreme sit-and-wait predator, native to Puerto Rico. The species was first detected in low elevation botanical nurseries on Hawaii Island prior to 1988. Though the highest densities of frogs are found in lower elevations, they are now spreading to mid-elevation forests and have the ability to thrive and successfully overwinter at higher elevations. Due to its voracious appetite and incredibly dense populations, the coqui frog has the potential to reduce arthropod populations, specifically aerial arthropods such as Coleoptera, Lepidoptera and Isoptera, which are primary food sources of the Hawaiian hoary bat.

Brief Methodology: In this study, I conducted dietary contents analysis of the Hawaiian hoary bat (fecal pellet analysis, Whitaker 1988) and coqui frog (stomach contents analysis, Beard 2007) to determine the degree of dietary overlap between the two species. Samples were collected from four sites on the east side of the island of Hawaii, from June 2009 to November 2010.

Brief Results and Conclusions: I collected a total of 213 E. coqui from two low elevation sites. Through dietary analysis, I determined that aerial insects made up approximately 24% of the coqui frog diet. Following the dietary analysis, I estimated the densities of coqui frogs at my two sites. By using the mark-recapture methods used by Woolbright et al. (2006), I determined the coqui frog population to be approximately 9,500 individuals/ha. From the population estimation, I was able to estimate that approximately 6-65% of the available aerial insects could be consumed nightly, leaving the Hawaiian hoary bat with less insects to select from.

After identifying the diet of the Hawaiian hoary bat (Bonaccorso et al. *in progress*) it was found that the dietary overlap of the bat and the coqui frog was not statistically significant. However, the percent overlap of the two species was found to be approximately 24%, which could prove to be significant as the density of coqui frogs continues to increase. The results of this research offer some insight into the food habit patterns of the Hawaiian hoary bats and the invasive coquí frog. Although the evidence shows there is dietary overlap of the two species, it does not provide strong evidence for direct competition.

This study can confirm that coquí frogs consume insects that are important in the diet of Hawaiian hoary bat and that the frogs have the potential to consume a large quantity of insects available in the ecosystem. The presence of *E. coqui* is not necessarily a driving force in the selection of prey consumed by the Hawaiian hoary bat. Although bats in low elevations consumed fewer Coleoptera where frogs were present, other factors must be considered. This study serves as a starting point in understanding the foraging ecology of Hawai`i's endemic *L. c. semotus*.



Join the Hawai'i Audubon Society for a night to remember at our First Annual Shearwater Soiree

This night of music, food and fun is scheduled for August 2nd at thirtyninehotel in the heart of downtown Honolulu from 5:30 to 9:00pm.

Throughout the night a silent auction full of great items will be held, an update of the Freeman Seabird Preserve will be given and the Adopt-A-Shearwater campaign will be launched.

Tickets are \$15 pre-sale and \$20 at the door. All food, entertainment and fun is included in the ticket price. All proceeds will go to support the mission of the Hawaii Audubon Society, the oldest conservation organization in Hawaii.

For more information or to purchase tickets please contact Melissa Kolonie at melissakolonie@gmail.com or Casey Primacio at hiaudsoc@pixi.com.



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Calendar of Events

~	_	_	
Sun	dav	June	26

Honolulu Zoo behind the scenes of the bird exhibit tour. Limit 12 please sign up at the HAS office 528-1432 hiaudsoc@pixi.com. Small fee \$4.00

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Meet at 1849 Ala Aolani St. Trail maintenance until 11:30. Lunch & Elepaio watching until 1pm. Limit 25 people must rsvp by June 23th contact Kristen Mailheau 808-554-4999 to sign up.

Saturday July 16th

Service trip to My Ka'ala on Oahu

Limit 12. Please sign up by July 1st. call HAS office at 528-1432 or email at hiaudsoc@pixi.com.

Tuesday August 2nd

First Annual Shearwater Soiree

Thirtyninehotel in Honolulu. Following the first day of the Hawai'i Conservation Conference.

Saturday, August 20th Hilton Hawaiian Village

Meet 10 am at penguins. Sign up with Alice Roberts at 864-8122

Saturday September 10th Welcome back Shorebird Paiko Laggon Lagoon walk

730 @ Kuli'ou'ou Rd. Sign up with Alice Roberts 864-8122

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