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The Status and Comparative Nesting Phenology of the Red-Crowned Parrot on O‘ahu, Hawai‘i

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Abstract

This article summarizes the presence and habits of the Red-crowned Parrot, (*Amazona viridigenalis*) on O`ahu, Hawai`i and describes and compares the nesting phenology of a pair in 2012 on O`ahu with its native range nesting phenology. This species has been present in the Pearl City, O`ahu area since at least 1982 (Pyle and Pyle 2009) and probably was present there as early as 1972, when a small flock landed in a backyard tree in the community of Momilani, as reported to the author by the homeowner in 2005. Even though this species is on the Hawai`i checklist (Pyle 2002) its nesting activity on O`ahu has not been well described, thus this article is the first descriptive account of nesting for this species in the State of Hawai`i. This species is not native to the Hawaiian Islands but instead to northeastern Mexico between 19 and 26 degrees north latitude (Enkerlin-Hoeflich and Hogan 1997). Its O`ahu population, similarly, is centered at approximately 21 degrees north latitude (Google Earth 2012), creating an interesting situation for comparing introduced with native population nesting phenology.

Female Red-crowned Parrot at nest cavity, Waimalu, O`ahu. Photo by N. Kalodimos.

Occurrence and Habits on O`ahu

Red-crowned Parrots on the Island of O`ahu are locally present in human-disturbed, forested areas of the leeward foothills, gulches, lower valleys of the east-central and central Ko`olau Mountains and in the suburban forests of central Oahu (NPK pers. obs.). During the 1970s and 1980s, two small, separate, populations were present on O`ahu: one in the Pearl City area (where the contemporary population exists) and a smaller population in semi-arid, coastal, Kapi`olani Park, approximately 14 miles east, southeast of Pearl City. The small, but growing, Kapi`olani Park population was present (in Kapi`olani Park) from 1969 until 1987 after which they permanently joined the Pearl City population (Pyle and Pyle 2009). This merging of populations was evidenced by a few individuals known to be residents of the Kapi`olani Park population appearing in the Pearl City population at the time of the Kapi`olani Park population disappearance (Pyle and Pyle 2009). To understand the Pearl City population better, the author conducted twice-monthly field surveys from 2004 to 2006 that included evening roost counts, visually tracking flocks departing the evening roost, physically following birds along flight paths to verify daytime activity locations, and conducting resident interviews about parrot presence. Additional informal public surveys and opportunistic field observations were conducted from 2008 to the present. This survey work combined with the literary record shows that as of 2012, this species’ approximate distribution is localized and patchy throughout an area that includes, from west to east, Schofield barracks, Mililani Town, Waipahu, Pearl City, Aiea and Aiea Heights, southward to the northern Pearl Harbor area (Pyle and Pyle 2009; NPK pers. obs.) and northwards to the lower sections of Ko`olau mountain valleys (in the Pearl City/Aiea areas)

with introduced forest up to approximately the 1000 foot elevation (NPK pers. obs.). Mean annual rainfall in these areas ranges from approximately 700 to 1700mm (Giambelluca et al. 2012).

Throughout this area they commonly forage on Java plum (*Syzgium cumini*) pulp, crack and eat the seeds of passion fruit (*Passiflora spp.*), Moluccan albizia (*Falcataria moluccana*), and Cook pine (*Araucaria columnaris*), and perch in the dead crowns of eucalyptus (*Eucalyptus spp*.) (NPK pers. obs.). Farther up valleys these food species become less common (NPK pers. obs.) which can help to explain this parrot species' affiliation for lower elevation areas (Denny 2009) where these and other food species are more common (NPK pers. obs.; see Renton 2001). This species evening-roosts communally in large eucalyptus trees and has been using the same roost locations for at least 24 years (see Pratt 1988; NPK pers. obs.) The author's observations show that birds arrive to the evening roost from the direction of the lowlands and outer Ko`olau valley foothills, not from upland mountain directions and that morning departures from the roost are in the same general directions from which they arrived the night before. Individuals were observed up to 9.5 miles from their evening roost vicinity. The evening observations of roost-bound flocks (in total, involving hundreds of birds) from 2004-2006 showed all but two individuals to be Red-crowned Parrots. The two dissimilar species individuals were an Orange-crowned Parrot (*Amazona amazonica*) and a Yellow-crowned Parrot (*Amazona ochrocephala*) that stayed together and did not interact with Red-crowned Parrots.

Years of observation show that the daily movements of members in this population are frequently along similar flight routes from the evening roost to their daily activity areas. Route directions, distances traveled, and the size of the flocks change within a year but follow a general repeating annual pattern. Movements change between breeding and non-breeding seasons and when different plant species are fruiting. During the non-breeding season, when females are not nest-committed, flocks are often larger (Pyle and Pyle 2009, NPK pers. obs.) and gregariously forage on the abundant seed crops of non-native tree species planted in suburban or in reforested habitats. For additional historical information of this species in Hawai`i see Pyle and Pyle (2009).

Nesting on O`ahu and in Mexico

Nesting behavior observations of a pair of Red-crowned Parrots on O`ahu were conducted at the pair's nest cavity every weekend (Saturday and/or Sunday) consistently between 16:00 and dusk and opportunistically between 06:00 - 08:30 during April-July 2012. Evening roost observations were made on June 24, July 1, 5, 8 and 15, 2012 at approximately 19:00 to check for the presence of nestlings. Twice a month evening-roost area observations/counts throughout 2004-2006 served as study references that assisted the logistical planning of these 2012 observations.

The nest cavity was located about 25 feet above the ground in a single-trunked Moluccan albizia, that was part of and shaded by a grove of the same species located at approximately north latitude 21.40997, longitude -157.94361 (Google Earth 2012). This Moluccan albizia grove was located on State of Hawai`i conservation land (managed by the Hawai`i Department of Land and Natural Resources) at the upper portion of a valley slope at an approximate elevation of 450 feet (Google Earth 2012). It was adjacent to and viewable from a Waimalu community (Aiea, Oahu) ridge top housing division at 98-1871 Ka`ahumanu Street. Being downslope from the residential area and facing it, the nest cavity position allowed excellent views with 10 x 42 binoculars. At least two other Red-crowned Parrots visited these trees during the observation period and it was likely that there were other nesting individuals in the vicinity. The nest cavity faced westward and was formed from the rotted out base of a broken branch coming off the main trunk (see photo). Although not generally considered sexually dimorphic (Juniper and Parr 1998), these paired individuals exhibited differences in coloration and size; the male had about double the extent of red plumage on the forecrown as the female and was larger in size as evidenced by the comparative difficulty with which he fit through the nest cavity compared with his mate. Age difference between the male and female could also, at least partially, explain their dissimilar physical characteristics.

The pair began to visit the cavity daily in early April at which time both individuals repeatedly entered and exited it to inspect it. The 21st of April was the first weekend the female was seen to spend the night in the cavity, indicating egg laying was close to that date. Using an average 27 day incubation period for wild, native range, Red-crowned Parrots (Enkerlin-Hoeflich 1995), the estimated hatching date would have been approximately the 19th of May 2012. Throughout the nesting period the calling male arrived in an adjacent tree, away from the cavity, about one hour after sunrise and again, one hour before sunset. At these times the female exited the cavity, flew to and was fed by him. In late June, both parents were seen feeding at least one nestling at the cavity entrance. The adults were not seen at the cavity on July 14 or 15th as they had been during all previous observation dates suggesting that the chick(s) fledged between July 9 and July 14, 2012. At the evening roost site the first fledglings were heard on Sunday, July 8, 2012; none were detected on July 5 or July 1.

Comparing this pair's nesting patterns to native range Red-crowned Parrots in Mexico shows that nesting heights are similar and they follow a similar nesting cycle, with the exception that this pair started their egg laying later than the average egg laying date in Mexico. In Tamulipas Mexico, about 24 degrees north latitude (nest cavity on O`ahu 21.4 degrees north latitude), out of 24 pairs the average initiation of clutch date was April 5 compared to about April 21 in the present study. but overall was within the range of initiation of clutch dates for this species (March 25-April 21) in Mexico (Enkerlin-Hoeflich 1995).

Red-crowned Parrots are known to re-use the same nest cavities that had successfully fledged chicks the previous year (Enkerlin-Hoeflich 1995) so recurrent monitoring of this pair's nesting cavity in future seasons may be productive and easily undertaken due to its location on state conservation land, its visibility from a residential area, and because the pair is habituated to human presence.

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Hawai'i Audubon Society Awards for Student Research

By Wendy Johnson, Education Committee Chair

The Hawaii Audubon Society presented two awards for outstanding research relating to Hawaii's natural history at the 56th Hawaii State Science and Engineering Fair held at the Hawaii Convention Center. In early April, representatives of the Hawaii Audubon Society's Education Committee joined other agency judges in viewing the exhibits and interviewing students on the subject of their original research.

SENIOR DIVISION RESEARCH AWARD

Connie Kim (12th Grade, Waipahu High School)

Connie Kim, who is a senior at Waipahu High School, received the HAS Senior Division Research award for her project entitled "Surveying Anchialine Pools at Kalaeloa National Wildlife Refuge to Restore the Population of the Hawaiian Orange-Black Damselfly (Megalagrion xanthomelas)". This fascinating research and fieldwork project was based on the need to find translocation sites for a portion of the last remaining population (approx. 500 individuals) of Hawaii's native and gravely endangered Orange-black damselflies. These insects are currently surviving in an artificial environment managed by the U.S. Army behind Tripler Hospital. Connie surveyed the newly restored anchialine pools in an effort to determine the suitability of that habitat for Orange-black damselfly survival at Kalaeloa National Wildlife Refuge. Pre-WWII data indicates that he damselflies once thrived in this area, but activities at Pearl Harbor during the war resulted in the filling and destruction of the brackish-water pools. Connie's water chemistry measurements and rigorous food supply (opa'e ula) counts indicate a positve outcome to the proposed translocation.

JUNIOR DIVISION RESEARCH AWARD

Anne Nakamoto (7th Grade, Waiakea Intermediate School)

The HAS award for outstanding Junior Division Research relating to Hawaii's natural history was awarded for a project submitted by Anne Nakamoto, who is a seventh grader at Waiakea Intermediate School in Hilo. Her project was entitled "Two Bees or Not Two Bees…(Pollinating invasive Fireweed)? That is the Question. A Study of Native Hylaeus Bee and introduced Honey Bee Visitations to Flowering Fireweed as Compared to the Native Mamane Tree." Anne is a frequent visitor to Mauna Kea and is aware of many issues in the Natural Resources Management Plan. She has observed the rapid spread of invasive fireweed in the area and was curious about what insects might be involved in its pollination. It has been assumed that native bees do not participate in fireweed pollination. Anne counted insect visitations (hyleaus bees, honeybees, and flies) in defined sample areas of both mamane blossoms and fireweed blossoms at 20 different locations on the slopes of Mauna Kea at varying altitudes (and temperatures) around 9,000 feet in elevation. Both types of bees were observed on mamane blossoms significantly more often than on fireweed, but both types of bees did vist both plants. Anne believes that insect pollinators are not the most important important factor in the spread of fireweed on the slopes of Mauan Kea, because fireweed pollen is probably also easily spread by wind.

***CORRECTION:** Authorship for *"RESEARCH NOTES: The Kipuka Project—Working to understand the threats to one of the most imperiled bird communities in the world"* on pages 4-5 of the May/April 2013 (73-3) printed issue of the 'Elepaio was not listed. The article was written by Jessie K. Knowlton and David J. Flaspohler. Our sincere apologies for the omission.

The Full-Circle Flight of a Northern Pintail

By Kyle Emery, Lily Jenkins, Moriah Jenkins, and Sarah Jenkins

The day that our Northern Pintail travelled full-circle was when all four of us met for the first time, brought together by bird bander Arleone Dibben-Young. Our duck had been captured at ʻŌhiʻapilo Pond Bird Sanctuary, Molokaʻi, and was marked with a green Darvic PVC leg band over U.S. Geological Survey aluminum band #1136-00804 and then released. None of us imagined that we would be connected by the flights our pintail made across the Pacific Ocean to and from Hawaiʻi. Our bird was harvested at the Butte Lodge Outing Club in Colusa, California, changing our lives forever by what we learned through the experience.

Moriah Jenkins (Age 18)

Banding birds has taught me the importance of scientific research and has given me the opportunity to get hands-on experience in a field setting with Northern Pintail, Green-winged Teal, Pacific Golden-Plover, Ruddy Turnstone and Wandering Tattler, Hawaiian Stilt and Hawaiian Coot. During my first year at Iowa State University for wildlife ecology and veterinary medicine, I discovered not only how significant it is to have native Hawaiian and migratory bird species on a resume, but to be able to tell the full-circle flight tale about our pintail.

Sarah Jenkins (Age 15)

I learned about duck migration when banding birds but never expected that anyone would see one of our ducks again. It's illegal to hunt waterfowl in Hawaiʻi, but I didn't know that that there is a duck hunting season on the mainland. Imagine my shock when I found out that our pintail had been shot! I felt better, though, after hearing that hunter harvest plays an important role in migration studies and that without the recovery of banded birds researchers wouldn't know where the bird migrated to or how long it lived. Spending time in wetlands has given me the opportunity to work around native plants and birds that most people will never see in their lifetime, and inspired me to focus on a future career in natural resource management.

Lily Jenkins (Age 13)

Arriving at the trapping site while it's still dark isn't easy for me, but watching the sunrise always makes it worth the effort. The morning we banded our pintail it was really cold stepping into the water to bag the ducks captured in the trap, but a half hour later the sun rose over the east end of Molokaʻi and the stilts in the wetland started making their loud "yip-yip-yips." Seeing a wetland wake-up is amazing! Working with waterbirds has motivated me to become a wildlife biologist.

Lily Jenkins carrying the full-circle pintail back to the water for release in 2008.

(Left to right) Moriah Jenkins, Kyle Emery, Lily Jenkins, and Sarah Jenkins at ʻŌhiʻapilo Pond Bird Sanctuary in 2011.

Kyle Emery (Age 17)

I began going out in the hunting blind when I was four years old, shooting and banding when I was eight, and was thirteen when I shot our sprig – that's what hunters call a drake Northern Pintail. No one at our hunting club had ever seen a duck marked with a green band and everyone was very excited when we found out that it had been banded in Hawaiʻi. What was even more amazing is that on the same day a Green-winged Teal with a green band was shot at a nearby hunting club. Could these two ducks have migrated from Molokaʻi together?

Our sprig was shot at a wetland within the Sacramento National Wildlife Refuge Complex. The weather that day was 40°, stormy and somewhat rainy, and perfect weather for duck hunting. Our pintail was in courtship flight with "his hen" – they came in together.

Growing up in a rural agricultural area has provided me with opportunities that many people will never experience, and the full-circle flight is one that won't easily be topped. Banding waterfowl and hunting is one of my favorite things to do. I shot our pintail for Christmas dinner but when I saw the bands I knew our bird was special and arranged for a taxidermist to mount him. Going to the ʻŌhiʻapilo Pond Bird Sanctuary with Lily, Sarah and Moriah is something I'll never forget. We live thousands of miles apart but discovered shared interests through the full-circle flight of our Northern Pintail.

HAS RESEARCH GRANTS ANNOUNCEMENT

CALL FOR PROPOSALS

The Hawaii Audubon Society offers grants for research in Hawaiian or Pacific natural history. Awards are oriented toward small-scale projects and generally do not exceed $500.00. Proposals are reviewed semi-annually, with the next deadline falling on **OCTOBER 1ST**. Download full application details at www.hawaiiaudubon.org/grants.

Patricia Mary Johnson (1934-2013)

Patricia Mary Johnson (nee McLennan) passed away on Friday, May 3, at the Acute Care Hospital in Billings, MT; her husband, son Mark and his wife Lorie were at her side. Death was caused by complications associated with surgery six months earlier. Pat was born in Chicago on November 23, 1934, the daughter of Earl and Teresa McLennan, and the youngest of three sisters. Only Pat grew to adulthood as her two siblings died tragically early in life.

As a beautiful young lady, Pat married Wally Johnson her high school sweetheart and soul mate on July 9, 1955. The two went on to forge an inseparable relationship that was steadfast for the nearly 58 years they shared love and life together.

From grade school on, Pat was a gifted artist. Pre-marriage, she studied at the Art Institute of Chicago, post-marriage the couple moved to Michigan State University where Wally was majoring in wildlife biology. During that period, Pat was employed as a graphic designer by the University and took art classes part-time. In 1957, Pat and Wally headed west to Washington State University where he embarked on graduate work leading to a doctorate (Zoology) in 1963. Over those years, Pat was the primary breadwinner working as a graphic designer in the WSU Publications Department, and again taking classes part-time.

From 1963-65 they lived in Gunnison, Colorado where Pat devoted her time to raising their son Mark, and continuing her coursework at Western State College (now University) where Wally was teaching. At the end of the school year in 1965, the couple moved to Minnesota where ultimately they spent almost all of their professional lives. For several years, Pat was the graphic artist at KFME (PBS television) in nearby Fargo. She then joined the Publications Department at Moorhead State College (now University) where Wally was a biology professor. Eventually, Pat rose to become Director of Publications, the position from which she retired. Along the way, another son Lee, was born, and as usual there were more part-time classes. The latter finally culminated in a well-deserved BA (Graphic Arts) degree that she proudly received from Moorhead State in 1987. Retirement came in 1990 with a long anticipated move to Montana where the Johnsons had often vacationed and for a time, owned a wilderness cabin on the North Fork of the Flathead River.

For many years (both pre- and post-retirement), Pat was Wally's partner in ecological research involving birds. They developed a profound interest in the incredible transoceanic migrations of Pacific Golden-Plovers, a bird that winters across the tropical Pacific and nests in Alaska and Siberia. The couple led a multi-faceted project (variously funded by such agencies as the National Geographic Society, BYU-Hawaii, Hawaii Department of Wildlife, and the U.S. Fish and Wildlife Service) that lasted for over 3 decades and produced extensive new knowledge of migratory pathways over a vast portion of the globe. Their studies required periods of fieldwork at various locations from Alaska southward to Hawaii, American Samoa, and Saipan. Many volunteers in Hawaii and elsewhere assisted in the project including Pat's dear friends the late Shirley Gaisford and her daughter Kelly from Bozeman. Notably, Shirley passes away only two days after Pat and of similar causes.

Pat loved travel and reading – her favorite author was Tolstoy. The plover project took the couple on many trips to Hawaii and Alaska. Other memorable journeys (some with Bozeman friends) included New Zealand, Argentina (with Madeleine and Miguel Muñoz), England (with Shirley and Kelly Gaisford), France, Italy, Russia (with Shirley Gaisford), The Netherlands, and Denmark.

Pat was preceded in death by her parents and her two sisters. She is survived be her husband Oscar (Wally) Johnson of Bozeman; children, Mark Johnson and his wife Lorie of Bozeman, Lee Johnson and his wife Setsuko of Bellevue, WA; grandchildren Kristen Johnson of Portland, OR, Kai Johnson of Bellevue, WA; and great-grandchild Madison Johnson of Portland, OR.

A celebration of Pat's life was held in June. Please consider sending a memorial donation in Pat's name to The Nature Conservancy, 32 S. Ewing St., Helena, MT 59601.

Aloha Patricia Johnson

By Annette Kaohelaulii

I was very sad when I received Wally's e-mail letting me know that the love of his life had passed away. Pat Johnson was one of my favorite people and I know how Wally must miss her. I valued her friendship and I know I will miss her a lot.

At my urging, Wally got permission to band the Kolea at the Hawaii State Veterans Cemetery in Kaneohe. Over the years, I had the pleasure of helping Wally and Pat with keeping track of the Kolea that they banded there when they would come to Hawaii in April and again in October. During the early 2000's, I led three Kolea ecotours to Alaska. Perhaps one of my fondest memories of Pat was the year that she joined Wally at their Kolea study site near Nome when I was there. We would go to the study site for the day, then get together for dinner in the evening. Those were always fun times and great conversations would take place.

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Upcoming Field Trips, Volunteer Opportunities & Events

Hilton Hawaiian Village Tour
Saturday, July 13th at 10 am – 12 noon

Visit Hilton Hawaiian Village's 10 ponds to see and feed several species of fish. We'll also go behind the scenes to see the parrots and any rehabilitating birds. Since HHV is conducting a few construction projects, most of the aquatic birds (flamingo, ibises, ducks) are on vacation at the Honolulu Zoo. Meet at the penguins area. Please RSVP to Alice by leaving a message with your name, number attending, and phone number at (808) 864-8122.

Kahanahaiki Forest Restoration Service Trip
Saturday, July 13th from 8 am – 5 pm

Hike to a restoration site in the Kahanahaiki Forest, located on the north west side of the Waianae Mountain Range. This mesic forest is home to a large number of native species, including several endangered plants and the kahuli tree snail. The hike (2 hours round trip) will include sweeping views of Makua Valley and the North Shore. Work will focus on controlling small strawberry guava saplings using saws and pruners and a caution-labeled herbicide using drip applicator bottles. All weeding tools and gloves will be provided. Led by the Oahu Army Natural Resources Program. Space is very limited. RSVP to hiaudsoc@pixi.com.

Hawaii Conservation Conference *Community Connections*
Wednesday, July 17th from 1 – 8:30 pm

Visit the Hawaii Audubon Society and other conservation exhibitors. The event also features round table discussions, forums, poster sessions, pau hana tastings, music, a pop-up art exhibition, and *Seeds of Hope* film screening. Held at the Hawaii Convention Center. Free and open to the public.

3rd Annual *Shearwater Soiree*
Wednesday, July 24th from 6 – 9 pm

Support the Hawaii Audubon Society by attending a fun evening with pupus, live Hawaiian music by *Live Aloha*, a silent auction and prize drawings, and presentation on the Freeman Seabird Preserve by David Hyrenbach, Ph.D. Held at thirtyninehotel in downtown Honolulu. Tickets are $15 pre-sale and $20 at the door. For more details, see flyer on page 7. Purchase tickets at www.hawaiiaudubon.org/soiree.

Moku'auia Island (Goat Island) Habitat Restoration
Saturday, August 10th from 9 am - 2 pm

Spend the day off the coast of Malaekahana Beach Park removing invasive species and planting natives to restore habitat for nesting seabirds. We will be walking to Goat Island from shore, so please wear reef safe shoes and clothing. Must be able to swim. RSVP to hiaudsoc@pixi.com.

Pouhala Marsh Wetland Restoration
Saturday, August 17th from 8:30 - 11:30 am

Join us as we lend a hand during the Hawaii Nature Center's monthly service project at Pouhala Marsh, which is the largest of the remaining wetland habitats in Pearl Harbor and of vital importance for the endangered Hawaiian stilts. Work may involve going into the water and mud (at least up to your knees) to remove pickleweed, cattail, and mangrove as well as outplanting and weed removal. RSVP to hiaudsoc@pixi.com.

Paiko Lagoon "Welcome Home Shorebirds" Tour
Saturday, September 7th at 10 am

Meet at 10 am on Kuli'ou'ou Road at the water's edge for a guided tour of the birds and their habitat. RSVP to Alice by leaving a message with your name, number of people attending, and phone number at 808-864-8122.

Bishop Museum Vertebrate Collections Tour
Monday, September 9th at 2 pm

The Bishop Museum's Vertebrate Zoology section includes collections of mammalogy, ornithology, herpetology and paleontology specimens. The Hawai'i bird collection of approximately 7,200 specimens includes extinct native species, native breeding species, non-breeding visitors, and introduced species. Please RSVP to Alice by leaving a message with your name, number attending, and phone number at (808) 864-8122. Space is limited to 10 attendees.

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Hawai'i Audubon Society Membership/Donation Form

☐ $25 Regular Member ☐ $15 Student Member ☐ $40 Family Membership ☐ $100 Supporting Member

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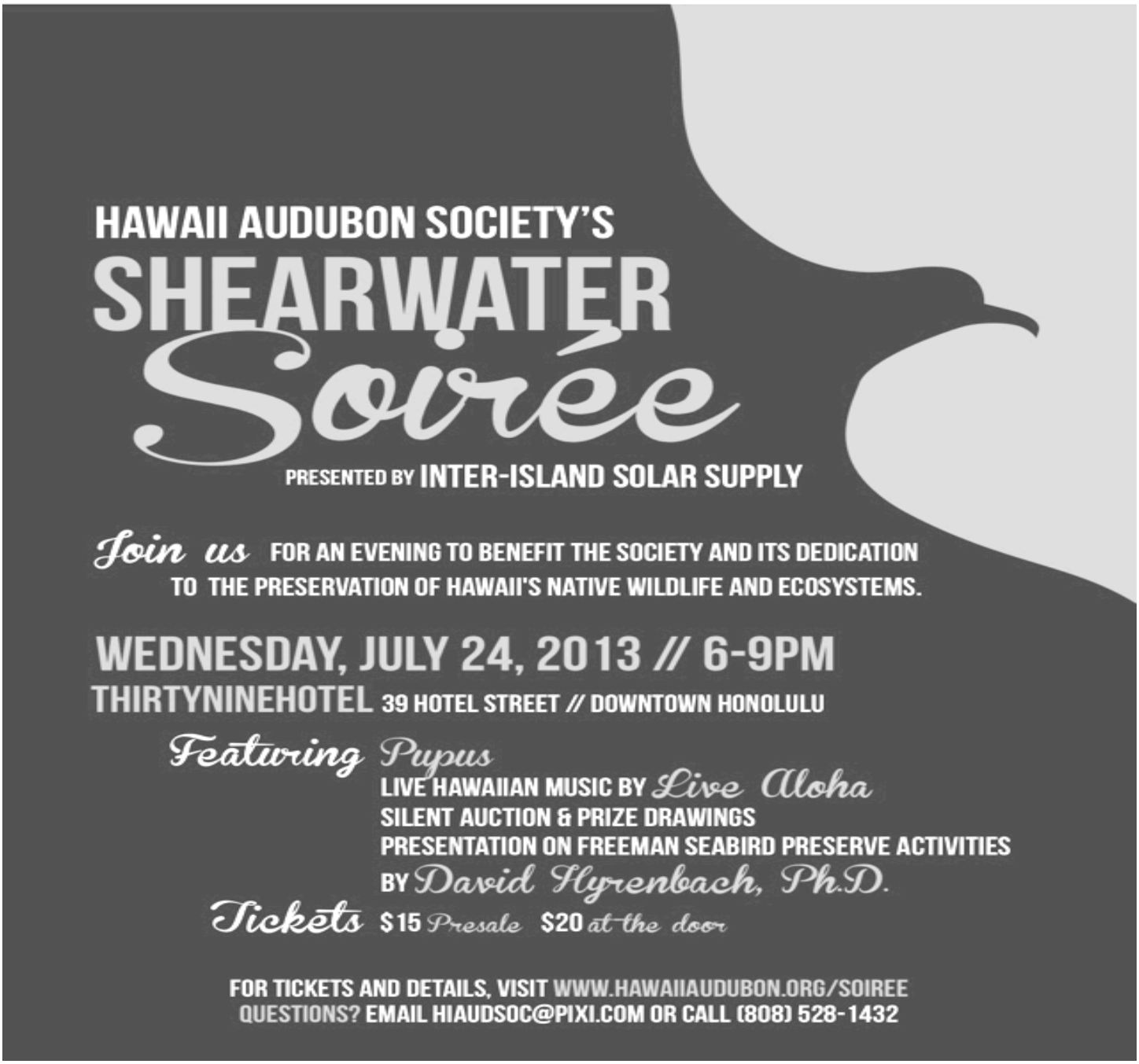

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PRE-SALE TICKET PAYMENT FORM

Wednesday, July 24th, 2013 | 6 – 9 pm | thirtyninehotel, downtown Honolulu

Tickets are $15 pre-sale and $20 at the door. Entry to the event will occur via guest list—just show up!
Payment must be received by Monday, July 22nd in order to receive the pre-sale ticket rate.
Pre-sale tickets may also be purchased online at www.hawaiiaudubon.org/soiree

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