ORIGINAL

FIELD SURVEY OF THE AVIFAUNA AND FERAL MAMMALS AT GROVE FARM PROPERTIES, LIHUE/PUHI, KAUAI

Prepared for

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5 October 1988

EXHIBIT J

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INTRODUCTION

The purpose of this report is to summarize the findings of a two day (1-2 October 1988) bird and mammal field survey conducted at a proposed golf course and housing site at Grove Farm Properties, Lihue/Puhi, Kauai. Also included are references to pertinent literature. Finally, the report discusses some possible changes that might occur in the faunal community following the proposed development.

The objectives of the field survey were therefore:

1- Document what bird and mammal species occur on the property or may likely occur given the type of habitats available.

2- Provide some baseline data on the relative abundance of each species and where possible determine their general habitat preferences.

3- Assess the possible changes in the faunal communities that might occur as a result of habitat alteration following the proposed development.

GENERAL SITE DESCRIPTION

The project site is located on the SE coast of Kauai (see Fig. 1). Virtually all of the proposed development area is presently under cultivation with sugar cane. Riparian habitat occurs along the Halehaka and Puali streams which border the site. The understory in the Halehaka Stream drainage has been cleared as part of the Kauai Nursery and Landscaping operation. Numerous cane haul roads divide up the property. Along the margins of these roads grass and weeds provide an additional habitat. During the period of the field survey the northern half of the project site was plowed. A Sanitary Landfill operation along the western boundary creates an unnatural but heavily utilized foraging area for birds. To the north of this landfill there is a small pond along Puali Stream. (see Fig. 1).

Weather during the field survey was clear with light easterly winds.

STUDY METHODS

Field observations were made with the aid of binoculars and by listening for vocalizations. Attention was also paid to the presence of tracks and scats as indicators of bird and mammal activity. Existing roads around and through the

the property were followed and at various points (see Fig.1). eight minute counts were made of all birds seen or heard. These counts provide the basis for the population estimates given in this report. Between these count stations observaions of birds were also kept. Data on habitat preferences comes from both of these resources plus information provided in Berger (1972), Hawaii Audubon Society (1984) and Pratt et al. (1987). Unpublished reports of similar habitats elsewhere on Kauai were consulted in order to acquire a more complete picture of the birdlife activity in the area (Bruner 1985, 1986, 1988a, 1988b).

Observations of feral mammals were limited to visual sightings and evidence in the form of scats and tracks. No attempts were made to trap mammals in order to obtain data on their relative density and distribution.

Scientific names used herein follow those given in the most recent American Ornithologist's Union Checklist (A.O.U. 1983), Hawaii's Birds (Hawaii Audubon Society 1984), A Field Guide to the Birds of Hawaii and the Tropical Pacific (Pratt et al. 1987) and Mammal Species of the World (Honacki et al. 1982).

RESULTS AND DISCUSSION

Resident Endemic (Native) Birds:

No endemic birds were recorded during the survey. Given the present nature of the property the only likely endemic bird that might occur would be the Short-eared Owl (Asio flammeus sandwichensis). Sugar cane fields do not provide habitat that is suitable for endemic birds. Puali Stream may have some useful habitat for wetland birds, however, none were observed. This stream lies outside but adjacent to the actual project site.

Migratory Indigenous (Native) Birds:

Pacific Golden Plover (Pluvialis dominica fulva)- A total of seven plover were recorded during the field survey. Plovers prefer open areas such as mud flats and lawns. Most plover were observed along roads and in the recently plowed sugar cane fields. Time did not permit sufficient observations to determine whether these plover were territorial. Johnson et al. (1981) and Bruner (1983) have shown plover are extremely site-faithful (returning each day to the same spot and maintaning this behavior throughout their life time). Plover also establish foraging territories which they defend vigorously. Such behavior makes it possible to acquire a fairly good estimate of the abundance of plover in any one area. These populations likewise remain relatively stable

over many years.

No other migratory shorebirds were observed. The only other common species which might occur would be the Ruddy Turnstone (Arenaria interpres). This species forages in rocky intertidal habitat as well as in fields and lawns. Although none were recorded this species probably occurs occasionally on recently plowed fields at this site.

Resident Indigenous (Native) Birds:

Two Black-crowned Night Heron (Nycticorax nycticorax) adults were observed along Puali Stream close to the Sanitary Landfill operation. This species is a common wetland bird which is not endangered and in fact has experienced a recent growth in its population as a result of the development of the aquaculture industry in the state.

Exotic (Introduced) Birds:

A total of 15 species of exotic birds were recorded during the field survey. Table One shows the relative abundance and typical habitat preferences of these species. The most abundant species during the two day survey were Common Myna (Acridotheres tristis), Cattle Egret (Bubulcus ibis) and Zebra Dove (Geopelia striata). Their unusually high numbers are probably due to the Sanitary Landfill which provide abundant food resources. A survey (Bruner

1988a) in Poipu found large numbers of Chestnut Mannikin (Lonchura punctulata). This species was much less abundant on Lihue/Puhi property. The difference is possibly due to a more limited food resource at the Lihue/Puhi property.

Four species recorded elsewhere on Kauai (Bruner 1985, 1986, 1988a, 1988b) were not seen on this survey but potentially could occur on the property or on adjacent lands. They include: Western Meadowlark (Sturnella neglecta), Common Barn-Owl (Tyto alba), Northern Mockingbird (Mimus polyglottos) and Greater Necklaced Laughing-Thrush (Garrulax pectoralis).

Feral Mammals:

A total of two cats were seen during the survey. Evidence in the form of gnawed passion fruits and sugar cane stalks suggest rats and mice are present on the site. The Sanitary Landfill likely serves as a focal point for these mammals. Without a trapping program it is difficult to conclude anything about the relative abundance of rats, mice and cats. However, it is likely that their numbers are not dramatically different from what one would find elsewhere on Kauai in similar habitat.

Records of the endemic and endangered Hawaiian Hoary Bat (Lasiurus cinerus semotus) are sketchy but the species

has been recorded from Kauai (Tomich 1986). At 7:00 pm on 1 October I observed two bats flying back and forth over a small pond on the Puali Stream just north of the Sanitary Landfill. These bats appeared to be foraging for insects that could be seen swarming above the pond's surface. I watched these bats foraging until darkness interupted. The Hawaiian Hoary Bat is not too uncommon on Kauai. I have seen them on many occasions at Haena and along the Wailua River.

CONCLUSION AND RECOMMENDATIONS

A brief field survey can at best provide a limited perspective of the wildlife present in any given area. Not all species will likely be observed and information on their use of the site must be sketched together from brief observations and the available literature. The number of species and the relative density of each species may vary throughout the year due to available resources and reproductive success. Species which are migratory will quite obviously be a part of the ecological picture only at certain times during the year. Exotic species sometimes prosper for a time only to later disappear or become a less significant part of the ecosystem (Williams 1987). Thus only long term

studies can provide the insights necessary to acquire both a broad view as well as a more definitive perspective of the bird and mammal population in a particular area. However, when brief field studies are coupled with data gathered from other similar habitats the value of the conclusions drawn are significantly increased.

In terms of broad conclusions related to bird and mammal activity on the project site the following are offered:

1- The present environment at the project site provides a limited range of habitats which are utilized by the typical array of exotic birds one would expect at this elevation and in this type of environment on Kauai. The unusual abundance of Cattle Egrets, Common Myna and Zebra Dove is due primarily to the presence of the Sanitary Landfill which provides a concentrated food resource.

2- Migrant species particularly Pacific Golden Plover are usually benefited by the kind of development that creates large open lawns. It would not be unusual if the population of this species increased on the project site following the development of the lawns. Presently plovercare relegated to roadsides and to recently plowed fields when such are available. This restricts plover from establishing territories and limits the present

usefulness of the property for plover.

3- A change of land use of the type proposed will greatly alter the present environment by creating a more diverse range of habitats. These new habitats will likely result in an increase in the populations of species like plover, House Sparrow (Passer domesticus) and finches. Game birds such as Ring-necked Pheasant (Phasianus colchicus) will likely decline as a result of a loss of vegetation cover presently provided by the sugar cane fields. This species is widespread and relatively common in second growth habitats on all main islands in Hawaii.

4- In order to obtain more data on mammals, a trapping program would be required. The brief observations of this survey did not reveal any unusual mammal activity. Mammal populations may also change following development. The loss of the dense cover provided by sugar cane will likely reduce somewhat the rat and mice populations. The occurrence of the endangered Hawaiian Hoary Bat was not altogether unexpected. This species does occur in developed areas (Bruner 1984). The extent to which Puali Stream and the surrounding habitat is used by bats was not determined. Our knowledge of the precise habitat requirements for this species are still sadly lacking. Much work yet remains to be done on the life history of this endemic Hawaiian bat.

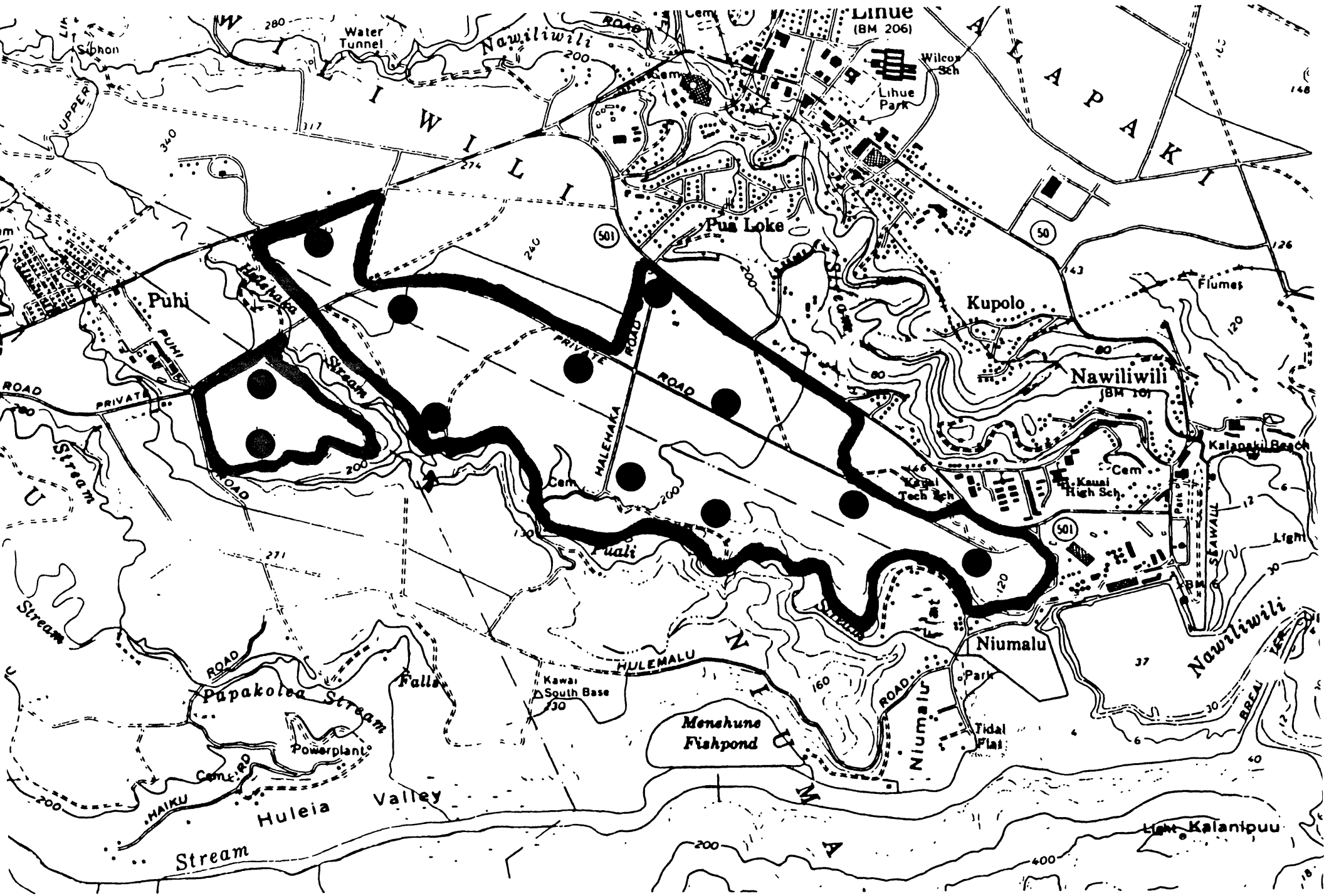

Fig. 1. Project site with eight minute count stations marked by a ●.
Arrow ➚ shows location of small pond on Puali Stream where bat was seen.

TABLE I

Relative abundance and general habitat preferences of exotic birds, Grove Farm Properties, Lihue/Puhi, Kauai.

COMMON NAME	SCIENTIFIC NAME	RELATIVE ABUNDANCE*	HABITAT
Ring-necked Pheasant	Phasianus colchicus	R = 1	T,G
Feral Chicken	Gallus gallus	U = 3	T,G
Cattle Egret	Bubulcus ibis	A = 165	O
Spotted Dove	Streptopelia chinensis	U = 4	O,G
Zebra Dove	Geopelia striata	A = 19	O,G
White-rumped Shama	Copsychus malabaricus	U = 3	T
Melodious Laughing-Thrush	Garrulax canorus	U = 2	T
Common Myna	Acridotheres tristis	A = 78	O
Northern Cardinal	Cardinalis cardinalis	U = 4	T
Red-crested Cardinal	Paroaria coranata	U = 3	T,G
Japanese White-eye	Zosterops japonicus	C = 8	T
House Sparrow	Passer domesticus	C = 6	O,G
House Finch	Carpodacus mexicanus	C = 6	T
Nutmeg Mannikin	Lonchura punctulata	C = 9	G
Chestnut Mannikin	Lonchura malacca	U = 4	G

* (See page 12 for key to symbols)

KEY TO TABLE I

Relative Abundance = Determined by frequency on eight minute counts in appropriate habitat. Number which follows is average of all counts for that species in appropriate habitat.

A = Abundant (ave. 10+)

C = Common (ave. 5-10)

U = Uncommon (ave. less than 5)

R = Rare (number which follows is total individuals seen during the field survey)

Habitat Preference = Area of most frequent occurence on this property

G = Grass and weedy patches along margins of roads

T = Thickets of dense vegetation in ditches and along streams

O = Open plowed fields

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