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For the Better Protection
of Wildlife in Hawaii

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Critique Re: Environmental Impact Statement for a Reforestation Project within Portions of the Waiakea, Upper Waiakea and Olaa Forest Reserves to Dr. Richard E. Marland, Office of Environmental Quality Control from Mae E. Mull, Corresponding Secretary and Big Island Representative, 1 November 1973

Officers and members of the Society have reviewed the above Environmental Impact Statement and inspected and sampled the project areas. The Society raises several questions on the impact of the proposal and requests consideration of the following recommendations and comments in modification of the proposal.

(1) Why were these particular flourishing native forests in the Waiakea and Olaa Reserves selected for deforestation? Many thousands of acres of good forests have already been bulldozed and "smashed" for conversion to experimental tree planting. The EIS fails to provide sound economic or ecological justification for the destruction of additional publicly-owned native forests on this mountain or elsewhere on the Big Island.

(2) What sound reasons are there for the intentional destruction of any more native forest lands in the foreseeable future? Any further massive despoliation directly by man should be restrained in light of other forces at work -- such as the possibility of lava flows onto existing forests, the unknown consequences of the 'ohi'a dieback process, and the poorly controlled degradation of some forests by feral sheep, goats, pigs and invading vegetation.

(3) Where is the evidence now that exotic plantations are a profitable State investment and the best use of Conservation District land? To make an informed assessment of the impact of the reforestation proposal, the reader needs to know the status of past planting programs. How do the successes and failures balance out among the hundreds of large-scale species trials? What is the altered potential now of extensively planted hardwood stands that were glowingly projected as the panacea for Hawaii's local needs and export market, but earned unsatisfactory marks in the final lumber tests? Clearing 5,300 acres of native land cover to make way for more experimental silviculture of unpredictable future worth would be a public extravagance in land-short days and austere times.

(4) What evidence is there that the four species chosen for planting in the project area -- Queensland maple, Australian toon, saligna eucalyptus and rose gum eucalyptus -- will have reliable growth habits and will produce quality lumber at maturity? Some research data on early growth of the four species are available in U.S. Forest Service publications, but they provide more questions than answers. It would seem incumbent upon the issuing agency to support their proposal with a reasonable amount of accurate data to assure the reader that the project is worthwhile, is wise land use, and justifies the cost and ruin of native ecosystems.

(5) Concerning the economic impact of the proposal (page 5), where is the supporting documentation that the four hardwoods will satisfy an "increase in consumer demand," and will replace or supplement imported hardwoods?

(6) Ninety per cent of the lumber imported into Hawaii is softwood -- largely mainland pines and redwood. Is there the expectation that the locally-grown hardwoods could compete in price with the cheaper imported softwoods and be an acceptable substitute? Or is it intended that the production of "about 20 million board feet on a sustained yield basis" (page 5) would supply both the Hawaii hardwood market and an anticipated export market?

(7) Cost of the project. Norman K. Carlson, Land Manager for the Bernice P. Bishop Estate, a major private land owner with large timber holdings on the Big Island, said in a recent talk to the Hawaiian Botanical Society that "it will now cost us over \$100 per acre to clear, plant and maintain," apparently including taxes. Why should it cost the State almost three times as much for site preparation and planting? The project cost given in the EIS (page 6) totals \$290 per acre.

(8) Rotation cycle. In the same talk Mr. Carlson said that "in our original study we anticipated logging at 35 years of age. ...However, present indications are that logging will have to wait for the 45th year." Several of the same species are involved. Is there a ready explanation for the 15-year difference in timber return? The EIS project is a 30-year cycle.

(9) Appropriations for reforestation (page 4). Surely land clearing is not a required expenditure in reforestation. May native species, as well as exotic plantings, be restocked and intensively managed with such funds?

(10) What is the overall impact of the U.S. Forest Service presence on Hawaii's exotic timber program? There are no National Forests in Hawaii, but there are eleven professional federal foresters stationed at the Institute of Pacific Islands Forestry next door to the State Division of Forestry in Honolulu. Because of the volume and content of publications emanating from the federal staff that downgrade native woods and vegetation and advocate commercialization of our small island forests, we question the imposition of mainland silviculture policies on State Forestry programs. The constant pressure for more exotic timber plantings can have devastating consequences for Hawaii's unique assets in natural resources and beauty.

(11) Alternatives to the proposed action. Although the EIS appears to reject Alternative A. No Reforestation Project, and B. Custodial Protection (page 10), the impact of those choices have positive benefits in wise land use and resource conservation. We are finally beginning to realize the disastrous effects of man's arrogance in manipulating the natural environment. The obvious deterioration of human life quality resulting from man's plunder of nature's resources warns us now that man's ultimate dependence on natural systems is inescapable. Recognizing the inherent functions and benefits of native forest ecosystems is wisdom. Contrary to the EIS position, enlightened custodianship of a prosperous native forest for all its true multiple-use and long-term conservation values would scarcely be judged unconstitutional by any Hawaiian court. In fact, current Land Use laws, environmental protection statutes, executive orders and legislative actions demand respect for Hawaii's singular natural environment through intensive evaluation and careful planning procedures for major projects with significant environmental effects. Permanently foreclosing options on a rich native forest through a deforestation operation would be shortsighted, unproductive use of high quality Conservation District land.

The EIS consistently denigrates existing values in the native forests in the project area. An on-the-site evaluation by unbiased observers would reveal that there is no threat of "take over of the area by weed species" (page 10), that the Upper Waiakea Forest Reserve is not a "dying native forest" (page 11), that exotic Psidium does not "dominate the understory" at higher elevations, that uluhe fern is not dense and is not a fire hazard in the undisturbed forest (pages 4 & 9). Uluhe fern is a potential fire hazard precisely in areas that has been manipulated, such as along roadsides and in poorly stocked planted areas.

It must be stressed that exotic timber plantations do not provide a permanent life-sustaining habitat for endemic forest bird species. There is no question that native birds will use exotic plants on occasion as a food source. But there is no evidence that endemic forest birds can carry on complete life cycles and sustain viable populations of the species in a wholly exotic environment. These comments relate to the discussion on the project impact on birds, pages 7-8, and 10.

The Hawaii Audubon Society recommends thorough consideration of these alternatives:

(a) Harvest the planted timber on existing plots that show negative growth and poor utilization potential.

(b) In the most suitable of such plots, encourage native koa to regenerate.

(c) Intensively manage -- through weeding, fertilization and restocking -- the pole stands that show promise of desirable timber in order to get higher quality and yield from smaller acreages.

(d) Try planting native species in trial plots with existing exotics. Mr. Carlson is following such a plan on Estate lands in Keauhou.

(e) Pursue the return of State-leased pasture lands to the Division of Forestry for koa reproduction.

(f) Redirect planting and regeneration efforts to koa and 'ohi'a stock of proven survivability and long-term value for sustained yields. Commercial forestry based on native woods will enhance Hawaiian ecosystems instead of destroying them.

In this connection, Norman Carlson's long forestry experience is worth pondering. In 1971 he wrote: I know now that I should have studied koa when I first got involved in forest management. It is a native tree, adapted to our soils, and valuable as a wood. So is 'ohi'a. I might mention the word ecology -- and then skip forward. Now that we are beginning to value koa, we must work toward the problems of koa forest management. ...On the better sites, I believe koa will equal any of the exotic trees in growth rate. Which means we must predicate a growth to harvestable use of 60 to less than 80 years. ...Another problem we face is the selection of site and tree quality. I am sure both have a bearing on koa merchantability. Soils, fertilizers, genetics, all these must be researched. Koa is a beautiful wood, distinctive and native to Hawaii. ...So far koa has too many unknowns. But this must change, and only through coordinated efforts can we evolve a koa forestry program which will be based on lumber use, known growth rates, and a continued program of feeding the increased market acceptability of koa. Mr. Whitesell has sent koa seeds to Africa. In Mr. Bryan's 1969 trip to Africa, he saw a 3-year stand of native Hawaiian koa that equalled Hawaii's best growth area. Maybe Africa, like us, will learn more about their exotics than of their native trees. And from Africa, we can extrapolate the data for Hawaii. I hope we don't have to wait that long.

RECOMMENDATIONS: The Society emphatically recommends that the 5,300 acres of public native forests NOT be bulldozed for the purpose of planting exotic timber species of unknown future worth -- for these reasons:

(1) Value of remnant rain forests. Only a fraction of Hawaii's original forests remain in existence. According to Zimmerman (Insects of Hawaii, 1948): "Not one-quarter of the original forest cover remains in these islands." With so little remaining relatively intact, no more good forests should be purposefully destroyed now. While some of these remnant forest lands are disturbed in some ways by man's careless introductions, they are essentially thriving native ecosystems. Better control of the plant and animal invaders by the Division of Forestry and Fish and Game would lessen the deleterious effects. But by no objective standard can the forests in question be called "unused," "unproductive," or a "dying native forest," as stated in the EIS (pp. 10-11). The dominant 'ohi'a-tree fern ecosystems of the area are diversified, balanced, self-supporting natural systems fully adapted to the soil, climate and topography. These systems sustain a rich variety of unique life forms in trees, understory plants, ground cover, insects, snails and birds that occur naturally only in what remains of Hawaii's singular rain forests. With the neighboring lands already drastically altered through conversion to tree plantations, sugar cane and the Kulani Project, the 5,300 acres take on an added value in their own right as two well-functioning native forests supporting an endemic flora and fauna -- much of which is rare and endangered.

(2) Multiple-use of native forest now. In their present living state of regeneration and succession these forests meet well the multiple-use objectives of watershed protection, erosion control, pig hunting, nature study, scientific research, open space, visual beauty, bird-watching, aesthetic appreciation, and conservation of endemic plants and birds. We must challenge the repeated references in the EIS that multiple-use goals will be more beneficial, improved or increased through costly conversion to a plantation of exotic timber. Timber planting doesn't become "multiple-use" just by calling it that. For the sake of credibility, the EIS must acknowledge the existing true multiple-use values of the native forest, instead of denigrating or denying them. Euphemisms concerning "multiple-use" should be permanently discarded. The fact is that the present multiple-uses of the diversified native forest will be either destroyed or degraded in favor of a primary single-use for monoculture tree farming.

(3) Scientific and educational potential of both native forests. With the promising Hawaii 2000 program at the new Waiakea Nature Center just down the road on Stainback Highway, there is a tremendous opportunity to use the lower forest for first-hand teaching

and learning experiences for school children and adults. Much of the special natural heritage of Hawaii has been lost or is in danger of extinction because so few people knew about it or cared enough to conserve these resources. There were few chances to learn about the unique insects, birds and plants that evolved over eons of time on these oceanic islands. If we never learn in school or as adults about the special natural life forms that only Hawaii has, then we can't appreciate them or delight in them as Hawaii's own. Hawaiian natural history can be an exciting and fascinating new world of discovery if the young child and curious student is offered many opportunities to see, and touch and learn of the wonders of nature in Hawaii right where the native forest flourishes.

Simple trails in the forest could easily become fascinating outdoor classrooms to listen to and observe the red 'Apapane, green 'Amakihi and brown 'Oma'o, along with the introduced Japanese White-eye. All of the beautiful native trees, understory plants, fallen logs and variety of ground cover -- with their insect associations -- could be studied at seasons of bloom and fruiting year round.

The ecosystem impact of exotic plants and alien animals would be a lesson source too. Right on the scene, students could learn the values of forest conservation and how the ancient Hawaiians were true conservationists -- they used the forest products and the birds, too, in their everyday life, but they didn't use them up! Our children need to learn to value and appreciate Hawaii's unique natural resources if their natural heritage is to be conserved at all and passed on to later generations.

The upper forest adjoins the proposed Puu Makaala Natural Area and is of similar rich quality. The Society recommends that the upper forest be added to the proposed Natural Area and be given permanent protection for its superb native ecosystems values and scientific research potential. The endangered honeycreeper, the 'Akiapola'au, has been sighted in the Puu Makaala area -- previously unknown as a habitat for that rare bird that occurs only in Big Island native forests. Hawaiian rain forests are so different from those/^{or}any place else and they have been so little studied by enough qualified scientists and observers that new species of flora and fauna are still being discovered in the remnant forests. The recently-discovered predacious caterpillars -- new to the scientific world, with endemic moth species yet to be described -- occur in both project areas! What a needless, thoughtless waste if these native areas are bulldozed when we still have so much to learn about Hawaii's natural history!

Also, what is unknown today about these ecosystems could be of great economic, as well as scientific, value to future people of this State. With no pressing demand or need that these lands be destroyed, the Society recommends genuine conservation use of these forests for their educational and scientific values in the long run.

The Hawaii Audubon Society would appreciate a reply to the issues raised in this critique and recommends that the Final Environmental Impact Statement reflect the crucial concerns that we have addressed here.

The following comments on Mae E. Mull's recommendations are from State Forester Tom K. Tagawa's letter dated 15 February 1974, pages 11 and 12:

1. Remove exotic trees from areas of poor stocking and form. Replanting and timber stand improvement are vitally needed in much of the planted area. This is a major project which has been neglected due to emphasis on planting acres (production) and other district work load and personnel shortages.
2. Inter-plant natives with exotics. This does not have potential for commercial timber because volume per acre and intensive management would be reduced. The procedure could be used to improve the native understory component, especially if these would benefit Hawaiian birds. It has the advantage of not disturbing the site, but it would eventually result in shading out the intolerant component of native vegetation.
3. Establish koa unit on State cattle leased land. We agree and have made this recommendation.
4. Plant only koa-'ohi'a of proven survivability and long-term value. This could be done for koa, provided that we are not confronted with environmental groups to preserve the native forest. A case in point is the Laupahoehoe koa harvesting.
5. Commercial forestry based on native woods. This is desirable where possible. The best possibility is koa; however, many questions remain to be answered. Exotic species have the greatest proven potential.

6. Place upper forest area in Natural Area. We have proposed a Natural Area System to the commission. How much area is placed in Natural Area protection is a matter of opinion. Some groups and individuals propose absolute hands off policy for all conservation district lands. Others want unrestricted development. We seek a middle ground which will maximize all benefits.

As the State Forester, I have a moral and legal responsibility to see that available resources are used with full consideration of a balanced program for economic development, conservation and preservation. In discharging my duties as State Forester, I strongly believe I am doing just that to enhance the quality of life in Hawaii for the greatest number of people.

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Critique from Wayne C. Gagne, Entomology Department, Bishop Museum, 30 October 1973:

This is a very inadequate Environmental Impact Statement for the reasons outlined below. It is a project which should not proceed because there are several excellent alternatives. Replacement of our dwindling, primarily native forests with exotic timber species is a tunnel vision approach that has never demonstrably measured up to its billing from economic and environmental standpoints. Numerous of these contentions have neither been statistically nor scientifically documented. Many are opinions paraded as facts. In 1973 it is especially galling to see yet more of our native forest being sacrificed on the altar of fuzzy economics when so many other aspects of forestry need attention. Multiple use of our native forests not in natural reserves can be made without going to the extreme of bulldozing them and replacing them with exotics. These last portions of original Hawaii should only be considered for replacement if the most dire of national circumstances dictate it.

It is interesting to compare the second paragraph on page 1 with the last paragraph on page 1 of an "Environmental Impact Statement for a Proposal to Plant Trees on a Portion of the Hamakua Forest Reserve, Hawaii District," the only other EIS to my knowledge that has been prepared by the Division of Forestry. For example, "two-thirds of the forest land (709,000 acres) is considered to be capable of producing timber of commercial quality." becomes "...half of the forest land, or 1,090,000 acres, is considered to be capable of producing timber of commercial quality." in the former. Similarly, "...30% of it has no timber on it at present and much of the remainder is very poorly stocked in comparison to its potential" becomes "...40% of it acutally has brush type cover...potential." Have our forests changed that much in only two years? (The Hamakua EIS I received is dated November 16, 1971.) Maybe the former applies to the Island of Hawaii and the latter to the State. On page 3, paragraph 4, line 3 appears one of the many sentences full of value judgements and undemonstrated contentions. It is stated "Beautification, erosion control, habitat for wildlife, and outdoor recreation are now more acceptable reasons to establish forests. The long-term effect of reforestation upon the environment is decidedly beneficial..." If the recent Time-Life Book on the American Wilderness devoted to Hawaii is any measure of what is considered beautiful in Hawaii, not a single planted forest to be found among its multitude of striking photographs. And considering the activities of the many hikers in Hawaii familiar to me, planted forests which show the heavy hand of man are not held in very high esteem. Erosion control is not a justification (see page 7) of this project anyway. And as to the wildlife contentions, I suggest that the OEQC contact the State Animal Species Advisory Commission for the mahy arguments they can present on the other side of the picture.

In reading the last paragraph on page 3 about the "rules continued as guides for our program" and the lack of specific mention of which species are to be planted and where leads me to believe that this will be an experimental commitment of 5,300 acres to unproven exotic tree species. And if past plantings can be instructive, it will not be surprising to me if much of this will be effort and money wasted and more native forest destroyed. For example, it doesn't take an expert to conclude that many hundreds of acres planted to tropical ash in the project area will never amount to anything. Plantations of this species at about 3500' are mostly chlorotic, diseased, apparently nutrient deficient and of poor growth form. ...The lower plantings are now heavily infested with exotic shrubs which will require expensive weeding if the tropical ash trees are to survive. This represents an irreversible commitment of formerly native forest which will never return to its original composition at the time it was bulldozed. Do we face the same prospect with

another 5,300 acres? The USDA Forest Service Research Paper PSW-69 (1972) says that only 11% of the tropical ash stands have desirable trees. Another says "Australian toon or tropical ash should not be planted on areas of pahoehoe, shallow soils on compacted aa (see "Basic soils series" on page 5, EIS) or poorly drained areas. And "Until they mature, the question of tree quality cannot be fully evaluated." Experimental plantation forestry, which I believe this is, should be carried out on a requisite number of small plots, not on thousands of acres.

Statements about the native plant community on the project site made on page 4, paragraph 5 do not match those made on page 7, paragraph 2 (Aesthetic). First it is stated that "...trees provide fairly open canopy, the ground cover is dense with various ferns." then on page 7 it is inferred that it is "...a thick overgrown brushland with a few scattered trees." At least in the upper sites to be bulldozed this is not the case. ...

In the paragraph on "Site preparation" on page 5 it is stated that "In the vicinity of mature koa trees, the site preparation work will induce heavy koa regeneration to renew the koa resource." Does this mean koa silviculture will then ensue (something the DLNR is belatedly encouraging) or that such sites will still be planted to exotics?

On page 6, under "Project Cost", the "Annual cost" is given only for a 7 year period. Shouldn't this be given to the rotation time, presumably 30 years? If so 23 more years of maintenance should be added to the project costs, that is, to harvest time.

What are the "fringe areas" mentioned under Recreation (page 6)? Is this the native forest? The implication I got is that the access roads through the planted forests were being used primarily to get to the native forests. The data are inadequate and confusing. It is my contention that pigs are found primarily in native rather than planted forests, and that construction of a few more trails would be quite adequate for hunters to take advantage of the resource rather than a criss-cross network of roads. I cannot foresee much picnicking in a rain forest, for example.

Under Timber production (page 6) the estimated production in board feet per acre should be indicated on a species-by-species basis rather than an overall average. All of the contentions made in this paragraph are open to question since this is an experimental effort.

Under Aesthetic (page 6) the aesthetic values mentioned in the biased second sentence ("Some people prefer a thick overgrown brushland with a few scattered trees") are irrevocably committed by such projects. I can't see how increased access leads to increased visual enjoyment. Where are the data?

In the last paragraph on page 7, the planting program may not in itself be responsible for the extinction of native birds. However, the drastic alteration of the vegetation does represent habitat reduction. The second paragraph on page 8 is the same as that which appeared in the Hamakua Forest Reserve EIS mentioned on page 1 of my critique. What is disturbing is to see the same errors still intact that I pointed out in my critique of the Hamakua Forest Reserve EIS 2 years ago. For example, it was not the crested honey-creeper that was considered extinct, it was the Maui nuku-pu'u. The contentions about the Kauai insect are also repeated errors. Does anyone even take the trouble to read the public's written responses? It seems not. (See last paragraph, page 4 of Hamakua EIS).

There should be a statement of the rare plant species, if any, in the project area. My Figures 4 and 5 taken in Area A, Figure 7, show 2 rare and fairly localized endemics viz: 'aku (Cyanea tritomantha) and meu (Cibotium hawaiiense). /Figures 4,5,& 7 omitted/

The third paragraph on page 8 makes the contention that exotic tree plantings with "a good crown canopy shaded out weed species" enhancing the return of shade tolerant native species. I should like to see some data on this. Many of the plantings that I've seen in the Waiakea area are now thickets of weedy exotics. In any case, I've seen several publications, for example USDA Forest Service Research Note PSW-263 (1972), which give data on herbicide trials with tordon in tropical ash to kill competing vegetation, and another with the explicit intent of killing 'ohi'a in such exotic planting which was regenerating. What are we to believe?

The "'ohi'a decline" or the "'ohi'a dieback" (3rd paragraph, page 8) should not be used as a justification for converting the area to exotic forests. This problem maybe a simple matter of nutrient deficiency as Dr. Ko, University of Hawaii, Hilo, contends. I get the impression that Forestry considers the problem to have no solution.

I contest the implication (1st sentence, page 9) that combustible quantities of uluhe

is "found throughout the areas where reforestation has not been done." In any case, increasing public access will likely increase the frequency of fires and I wonder if the roads will be adequate to serve as firebreaks, since they too become rapidly overgrown and require repeated bulldozing, adding again to the overall costs.

I contest the statement (1st sentence, last paragraph, page 9) that "Commercial tree planting is an essential part of a multiple use program for the forest lands" (emphasis added). My view is that multiple use has a function in native forests and allows many more of the options mentioned in previous paragraph of the EIS to be pursued, in many more "balanced" ways.

There should at least be a preliminary survey of the native biota in the project area before the statements that are made in the 2nd paragraph, page 10 are presented. What evidence is there that the native birds will simply "shift to adjacent forest areas or adjust to the disturbed conditions?" Does the 'akepa, a rare and endangered subspecies, really occur in the project area? If so, the destruction of its habitat will be an illegal act according to recent State law. This whole paragraph is filled with conjecture. The EIS can surely be more specific since there are already planted stands available for comparison.

The section on Alternatives is woefully inadequate. Even the State Legislature has given direction (perhaps unheeded) here. For example, there were 3 resolutions presented in the Seventh Legislature (1973) which provide excellent alternatives or procedures. These were H.R. 233: Relating to the Preservation of Hawaii's Native Forests and to the Establishment of Objectives and Policies Thereto; S.R. 221: Relating to the Increased Protection of Hawaii's Native Forests and to the Establishment of Policies and Policies Thereto; and S.R. 303: Requesting that the State's Animal Species Advisory Commission Review the Forest Planting Plans of the Department of Land and Natural Resources. The Legislature has clearly indicated its concern, Article X of the State Constitution notwithstanding.

Mr. William Thompson, deputy director of the DLNR, quite clearly indicated that alternative sites do exist in his recent address to the 15th Annual Forestry Conference in October. He also indicated that there should be an emphasis on native koa and even sandalwood. Mr. Frederick Erskine, director of the State Department of Agriculture, has indicated to me that marginal grazing land and watershed mistakenly allowed to be grazed are also good candidate areas for reforestation. While such activities may not have the glamor that destruction of native forest and replacement with exotics may have, even the higher State officials are pushing these alternatives.

The Division of Forestry seems all too eager to write off our native forests because they "have been affected to some degree by human...activities as well as by the...introduction of plants and animals, both beneficial and noxious" and because some of it is "dying native forest." ...

THE SUNDAY STAR-BULLETIN & ADVERTISER, 13 January 1974, page B-1: Non-native, Wild Bird List Published

Some 25 types of introduced birds, other than game birds, have become wild and well-established in Hawaii, according to the State Department of Land and Natural Resources.

The Land Board has approved the publication of a revised list of non-native, nongame birds that now fly the Hawaiian skies in significant numbers. The list does not include all birds of the non-native, nongame category since some—although there is some evidence of reproduction—are not yet well-established. The birds are cattle egret, barn owl, edible-nest swiftlet, skylark, Japanese or varied tit, white-throated laughing thrush, Chinese thrush, red-billed leiothrix, ...red-whiskered bulbul, red-vented bulbul, mockingbird, dyal thrush, shama thrush, Japanese bush warbler, common mynah, Japanese white-eye, western meadowlark, linnet or house finch, strawberry finch, ricebird or spice finch, black-headed mannikin, house sparrow, Kentucky cardinal, Brazilian cardinal, saffron finch.

HONOLULU ADVERTISER, 31 January 1974, page C-2: Suit on Imported Bird

Alika Cooper of Puako, Hawaii, has filed a \$50,000 circuit Court suit charging that the State negligently imported a bird species that has damaged his plants. The birds are francolins and are described as "partridge-like birds."

A State spokesman said the birds were imported about 10 years ago and placed on the

Big Island, Oahu, Molokai, Lanai and Maui for hunting purposes. The spokesman said most birds will feed off cultivated land during dry periods, and said the francolin is not more plant-predatory than its fellow feathered friends. ...

Volcano, Hawaii, Christmas Count
30 December 1973

	A R E A S								TOTAL
	1	2	3	4	5	6	7	8	
White-tailed Tropicbird	.	2	.	.	.	.	.	.	2
Hawaiian Goose (Nene)	.	.	.	4	.	.	.	.	4
Hawaiian Hawk ('Io)	.	.	.	3	.	.	1	.	4
California Quail	.	1	.	.	.	.	.	.	1
Ring-necked Pheasant	1	.	.	.	.	.	.	.	1
Blue Pheasant	.	.	.	10	2	.	.	.	12
Pacific Golden Plover	2	12	.	124	2	17	.	.	157
Spotted Dove	.	.	.	.	.	6	.	.	6
Barred Dove	.	.	.	18	.	.	.	.	18
Skylark	.	.	.	13	10	.	.	.	23
Red-billed Leiothrix	2	.	.	1	.	.	3	7	13
Hawaii Thrush ('Oma'o)	.	.	.	49	.	2	168	65	284
Hawaii 'Elepaio	2	.	.	22	1	.	21	22	68
Common Mynah	.	7	.	17	.	15	2	.	41
Japanese White-eye	42	8	.	99	.	21	60	9	239
Hawaii 'Amakihi	2	1	30	94	46	.	15	19	207
Hawaii Creeper	.	.	.	.	.	.	2	1	3
Hawaii 'Akepa	.	.	.	1	.	.	.	12	13
'Akiapola'au	.	.	.	1	.	.	.	8	9
'Apapane	126	37	31	262	114	108	1950	433	3061
'I'iwi	1	.	.	23	9	2	91	35	161
Ricebird	.	.	.	13	7	1	.	.	21
House Sparrow	.	6	.	23	.	2	.	.	31
Cardinal	17	.	.	.	3	2	.	.	22
House Finch	6	.	.	129	13	.	5	.	153
No. of Individual Birds:	201	74	61	906	207	176	2318	611	4554
No. of Species:	10	8	2	19	10	10	11	10	25

Total hours on foot: 22

Total hours by vehicle: 9.5

Total miles on foot: 12

Total miles by vehicle: 46.5

Count taken within 15-mile-diameter circle centered on Kulani Cone summit (19°31'N, 155°18'W), as described for last year's count. Weather: cloudy, intermittent light rain; temperature 55°-70°F; wind SW, 0-15 m.p.h.

Following areas were covered:

- 1 Bird Park (Kipuka Puauulu) in Hawaii Volcanoes National Park (Peterson, Ungers)
- 2 Rim of Kilauea Crater (Peterson, Ungers)
- 3 Mauna Loa Trail, 6600-8200' elevation (Reeser, Tomich)
- 4 Keauhou Ranch (Carpenter, Guest, Hogan, MacMillen, Smith)
- 5 Mauna Loa Strip Road, 4000-6000' elevation (Reeser, Tomich)
- 6 Volcano, Wright Road and Upper Olaa Forest Reserve (Mulls, Wilson)
- 7 Kulani Road and Puu Makaala (Banko, Mulls, Wilson)
- 8 Kilauea Forest Reserve (three Jacobis, Steiner)

Eighteen observers in five parties: Winston Banko, Lynn Carpenter, Sandra Guest, John Hogan, James Jacobi, Jean Jacobi, Zoe Jacobi, Richard MacMillen, Mae Mull, William Mull, Donald Peterson, Donald Reeser, Eddie Smith, William Steiner, Quentin Tomich, Carolyn Unger, John Unger, Erika Wilson.

Highlights of the 1973 Volcano, Hawaii, Christmas Count by William P. Mull, Compiler

The most notable result of this bird census was its parallel with last year's findings, when the Hawaii Audubon Society re-instituted a Christmas Count in the Volcano area

of the Big Island after a 16-year hiatus.

Our species list of 25 was identical with last year's, except that the Chukar of 1972 was replaced by the California Quail in 1973. Our over-all total of 4,554 individual birds counted on December 30, 1973 was remarkably close to the 4,630 counted on December 30, 1972.

Considering the known or expected variability factors between these two counts, the results tend strongly to validate one another as reliable indicators of the bird species and relative population numbers occupying these census areas at this season and at this point in the ecological history of the overall census circle. Since the main purpose of Christmas Counts is to provide reliable data on norms and changes in bird species and populations in particular areas, the results of these first two counts for the revived Volcano annual census should be rewarding to all those participated.

It appears that our new president, Wayne Gagne, set a sound course for us when he repositioned, reorganized and reinstated the Volcano Count last year. Certainly this is an area of prime significance and importance to our Society in its efforts at "Better Protection of Wildlife in Hawaii." Here, among our rare native birds in their remnant native ecosystems, we are counting the heartbeats of the real Hawaii—which we must do if we are to save it and enjoy it.

Be it highlight or sidelight, this compiler sees hopeful portent in these count results: perhaps we won't get an Asian chukar or a North American quail here every year, and perhaps we will get the Hawaii Creeper, Hawaii 'Akepa and 'Akiapola'au every year—if the Society does its main job well.

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Kauai Christmas Count

One major change has occurred in this year's count on Kauai. The Society has instituted a new bird count located in the northwest section of the island, called the Alaka'i Swamp Count Circle. We anticipate that this new count will not only simplify the Kauai count but will also include the largest number of diverse habitats (sea level through to cloud forests at 4600' elevation) and a more accurate representation of Kauai's avifauna (including exotics, indigenous and endemic species). Included within the count circle is the Alaka'i Swamp, containing one of the finest remaining 'ohi'a rain forests in Hawaii and the State's only forest bird sanctuary. Six rare and endangered endemic forest birds exist within its boundaries.

Count taken in a circle, 15 miles in diameter, 22°08'N; 159°34'W, (epicenter Pawainui Falls at the USGS cabin, central Wainiha Valley, Northwest Kauai). Habitat: ocean, taro patches, residential and lowland pasture 20%; dry cliffs and canyons 15%; valley forests, mixed native and exotic 50%; 'ohi'a cloud forest and bogs 15%. Date: 29 December 1973 from 0700 to 1730 hours. Weather: A.M. clear, P.M. partly overcast to heavy overcast, fog; temperature 48-80°F; wind SW, 0-20 m.p.h.

Following areas were covered:

- | | |
|-------------------------------|-------------------------------|
| 1 Puu Kila lookout | 5 Mohihi (Camp Sloggett area) |
| 2 Puu Kila to Kalalau lookout | 6 East Alaka'k Swamp |
| 3 Honopu trail | 7 Hanalei area |
| 4 Koke'e Museum area | |

(compiler)

Six observers in three parties: Paul Buratti, Roy Constantino, Wayne Gagne, Alan Hart, / William Villanueva, and Keith Woolliams.

The Lihue count circle for Kauai is centered near Lihue and includes coastal, urban, and agricultural areas. 21°59'N; 159°26'W, (epicenter north of belt road between Puhi and Koloa exits). Date: 16 December 1973, 0800 to 1700 hours. Weather: clear all day; temperature 63-82°F, wind calm.

Nine observers in 5 parties, plus 1 at feeders: Myrna Campbell, Rick Catron, Sophie Cluff, Janet Gordon, Elizabeth McCoy, David Sears, Winona Sears (compiler), Virginia Siewertsen, Maria Stewart, and Yamaguchi.

(Continued page 120)

Wanted: Top quality 35 mm color slides of 'apapane and 'oma'o to make prints for a park exhibit by Glen Kaye, Interpretive Specialist, Hawaii Volcanoes National Park, Hawaii 96718. Will pay \$25 per slide for each slide used (photographer retains ownership of slides). In reply refer to: K3019, 11 February 1974.

Kauai Christmas CountAlaka'i Swamp Count
29 December 1973Lihue Count
16 Dec. 1973

	1	A	R	E	A	S	5	6	7	TOTAL	
White-tailed Tropicbird	.	2	.	.	.	.	.	.	.	2	8
Cattle Egret	9	9	.
Black-crowned Night Heron	6	6	6
Hawaiian Duck (Koloa)	8	8	5
Pintail	3	3	.
Jungle Fowl	.	.	.	10	.	.	.	.	9	19	1
Ring-necked Pheasant	2	2	6
Hawaiian Gallinule	15	15	9
Hawaiian Coot	12	12	4
Pacific Golden Plover	.	.	.	3	2	3	31	39	149	149	149
Ruddy Turnstone	4	4	18	18	18
Wandering Tattler	4	4	1	1	1
Hawaiian Stilt	17	17	.	.	.
Spotted Dove	.	.	.	1	.	.	31	32	126	126	126
Barred Dove	.	.	.	1	.	.	124	125	334	334	334
Short-eared Owl (Pueo)	1
Mockingbird	10
Chinese Thrush	3	3	6	23	23
Kauai 'Oma'o	1	.	1	.	.
Shama Thrush	2	2	27	27
Kauai 'Elepaio	.	3	6	.	2	14	.	25	.	.	.
Kauai 'O'o ('O'o'a'a)	2	.	2	.	.
Common Mynah	.	1	.	3	4	.	54	62	244	244	244
Japanese White-eye	1	.	.	.	.	.	14	8	23	188	188
Kauai 'Amakihi	.	.	1	.	.	.	5	.	6	.	.
'Anianiau	.	2	2	.	.	.	46	.	50	.	.
Kauai Creeper	.	.	10	.	.	.	15	.	25	.	.
Kauai 'Akepa	12	8	5	.	11	1	.	37	.	.	.
'Apapane	6	22	2	.	.	.	379	.	409	.	.
'I'iwi	.	.	5	.	11	33	.	49	.	.	.
Ricebird	218	218	118	118	118
House Sparrow	12	12	64	64	64
Western Meadowlark	22	22	22	22	22
Cardinal	1	.	3	4	40	40	40
Red-crested Cardinal	3	3	3
House Finch	5	16	21	51	51
No. of Individual Birds:	19	38	31	18	31	521	613	1271	1458	1458	1458
No. of Species:	3	6	7	5	6	13	23	33	24	24	24

	Alaka'i	Lihue	Alaka'i	Lihue
Total hours on foot:	16.3	10	Total hours by car:	2.1
Total miles on foot:	7.0	8	Total miles by car:	36.0
				8 (5 by bicycle)
				150 (13 ")

Notes on Unusual Records by Alan Hart, Compiler

Hawaiian Duck, Hawaiian Gallinule and Hawaiian Stilt. Rare and endangered waterbirds, included in the U.S. Bureau of Sport Fisheries and Wildlife's Red Book. Observed in the Hanalei area (Constantino & Villanueva) and frequenting taro patches there. All three have been steadily decreasing in numbers in recent years due to among other things, increased pressure on land usage in coastal areas.

Kauai 'Oma'o (Large Thrush). New National Record. Rare and endangered and included in the Red Book. In the 1890's, the 'Oma'o was considered to be Kauai's most common endemic forest bird. Our bird was sighted in late afternoon, singing from the top of a dead 'ohi'a tree, adjacent to a bog in a remote area of the Alaka'i Swamp (Gagne & Hart).

Kauai 'O'o ('o'o'a'a). New National Record. Extremely rare and endangered, also a member of the Red Book. Biologists estimate the remaining population to be 50 birds or less. Thought to be extinct for about 60 years until rediscovered in 1960. Last of Hawaii's Meliphagidae (Honeyeaters), the other three 'O'o species (Oahu, Molokai and Hawaii) are considered to be extinct. One 'O'o was sighted in dense forest (Gagne & Hart) and another was heard close by at the same time. Area was in a remote valley in the central portion of the Alaka'i Wilderness Preserve and in the general vicinity of the 'Oma'o sighting.

Notes by Participants

Koke'e (areas 1 through 5) by Keith Woolliams: I'm afraid our lack of knowledge really hampered our progress on the count and because we are not familiar with the calls and flights, we all too often could not identify small flights which probably were well known to others. The ones noted are ones we are sure of, but there were hundreds of others. ...

Hanalei (area 7) by William Villanueva & Roy Constantino: Went in old roads, cane field roads, taro patches, beaches, reservoirs, and other side roads. Hawaiian gallinule, koloa, Hawaiian stilt, cattle egret, and jungle fowl found in taro patches in Hanalei.

East Alaka'i Swamp (area 6) by Wayne Gagne & Alan Hart: The East Alaka'i Swamp Christmas Bird Count was conducted in an area of pristine native 'ohi'a rain forest and bog habitat some 2-4 $\frac{1}{2}$ miles west of the summit of Mt. Waialeale, reputedly the world's wettest place. Further, the survey was taken both near and within the recently established Alaka'i Wilderness Preserve which includes some 20 square miles of forest designed as the State's first and only forest bird sanctuary.

We entered the remote and rugged Alaka'i plateau by helicopter one day before the count was conducted and, being provided with good weather, were able to establish a good bird count route and general understanding for the area, which was new to both of us.

Started count at 7:15 AM from the USGS cabin at 4500' on the west end of a bog near the headwaters of Halepaakai Stream, a tributary of Waialae Stream in clear, calm brisk (48°F) weather. Walked to east end of bog stirring up 2 golden plovers. We also made periodic estimates of 'apapane in the 'ohi'a bordering the bog. Turned north through a stunted 'ohi'a rain forest, across another small bog and a creek hearing and seeing little other than 'apapane, then started encountering the occasional 'anianiau, creeper, and 'elepaio. Such was the case for these latter 3 species the rest of the day. After going north for about $\frac{1}{4}$ mile, reached the east end of a succession of large open bogs which progressed northwest for about $\frac{1}{2}$ mile with an intervening patch of 'ohi'a rain forest. Reached the west end of these bogs about 9 AM.

At 10:15 AM an 'o'o'a'a flew overhead and into a lapalapa (Cheirodendron sp.) tree about 75' from us. It peered out at us responding to the commotion it had created as we maneuvered on uneven ground for a better view. It had caught our eyes because of its comparatively large size and black body with a long black slightly decurved bill. The tail and legs were obscured but we did watch it through 7x50 binoculars for 20-30 seconds. It gave a call in response to another 'o'o, hidden nearby. The call reminded us of some of the repertoire of the more common 'i'iwi, a liquid double note, perhaps bell-like notes. Just as quickly as it appeared, it was gone, heading slightly uphill from the small valley at the west end of the bog. We tried to follow briefly but soon gave up because the dense undergrowth quickly rendered our efforts futile.

We regained the main trail and proceeded slowly northwest picking up the occasional 'anianiau, creeper, white-eye, 'elepaio, and 'i'iwi, estimating the abundant 'apapane, and were surprised at the scarcity of 'amakihi. Heard 3 Chinese thrush in this area before noon, and grew increasingly anxious over not seeing 'akepa, 'oma'o, and 'o'u, 3 species likely to be encountered here. (For that matter, 2 of the remaining 3 endemic forest birds, nuku-pu'u and puaiohi, have been sighted in recent years in this area.)

Progressed northwest for another $\frac{1}{2}$ mile following the trail on a small ridge in 'ohi'a rain forest before turning back about 2:30 PM. Returned to the area where we had seen the 'o'o'a'a in hopes of seeing another, but to no avail. The weather was becoming overcast and the winds were now from the south, gusting to 15 mph.

At about 4 PM we got a good view of an 'akepa in company with 2 'elepaio, the only definite sighting we made. We felt that the 'akepa had to be more abundant here but owing to its habit of staying in the tops of the canopy and its rapid movement through this dense forest, definite sighting of it was indeed a task. We were also unfamiliar

with its call note, perhaps obscured by the call notes of the related creeper and 'anianiau.

It appeared that a Kona storm was brewing so our pace quickened back to the cabin. Halfway across the westernmost open bog we spotted the rare and endangered Kauai 'oma'o. We saw one singing from the top of one of the many dead 'ohi'a bordering the south side of the bogs in flat light against a grey sky. It flew up, singing, plunged into the canopy, then a couple of minutes later reappeared atop another dead 'ohi'a. It sang briefly then disappeared again into the canopy. (We had briefly glimpsed one the previous afternoon feeding on lapalapa fruit.)

We returned to the cabin in gathering dusk. A plover plunged out of the low lying clouds to settle down on the bog for the night. We made quick counts along the edge of this bog until darkness dictated a halt to the East Alaka'i Count and the first drops began of what later became a torrential, night-long downpour. Save for the 'akepa and 'oma'o, our species count didn't increase on the return leg of our route.

Field Notes from Charlotta Hoskins, 13 March 1974: Java Sparrow

Priscilla Harpham reports a flock of at least fifteen Java Sparrows ground feeding with Brazilian Cardinals on the grounds of St. Francis High School in upper Manoa.

Plover Watching

Have you noticed the black feathers on the breast, abdomen, cheek, and throat? This is beginning of March and already I see signs of breeding plumage. Please watch for the complete change and the date of departure and send in your observations to Kojima, 725-A 8th Avenue, Honolulu, Hawaii 96816. MAHALO

We have received Point Reyes Bird Observatory Schedule of Courses for 1974, and it will be available for reference during our general meetings. For further information, write Meryl Stewart, Box 442, Bolinas, California 94924.

ALOHA to new members:

Betsy C. Harrison, 2310 Ferdinand Avenue Honolulu, Hawaii 96822
 Joseph C. McAndrew, Shinshu Kyokai Dorm Rm 315B, 1641 S. Beretania St, Honolulu 96814
 Ann Orr, 1928 Metcalf St, Honolulu, Hawaii 96822
 Mary E. Reddin, 2943 Kalakaua Ave, Honolulu, Hawaii 96815
 Mrs. Naomi K. St. Denis, 2957 Kalakaua Ave, Honolulu, Hawaii 96815
 Rene Sylva, PO Box 218, Paia, Maui 96779

Because of critical paper shortage the annual index for Volume 34 will be mailed to members only upon request, so if you are interested in receiving a copy, please send in your reservation before July to Kojima, 725-A 8th Avenue, Honolulu, Hawaii 96816.

HAWAII'S BIRDS, a field guide, is available for \$2.50 postpaid, Airmail 50¢ extra. Send in orders to: Book Order Committee, Hawaii Audubon Society, PO Box 5032, Honolulu, HI 96814.

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APRIL ACTIVITIES:

- 8 April - Board meeting at McCully-Moiliili Library, 6:45 p.m. Members welcome.
- 15 April - General meeting at Waikiki Aquarium at 7:30 p.m. Program: Po'o-uli (black head), World's Newest Bird Genus and Other Birdlife of the East Maui Rain Forest (color slides) by Tonnie Casey
- 21 April - PLEASE NOTE DATE. Field trip to Poamoho to study forest birds. Bring lunch, water and if possible your car. Transportation cost (\$1.00) to be paid to the drivers. Meet at the State Library on Punchbowl Street at 8:00 a.m. Leaders: Tonnie Casey & Erika Wilson, telephone 523-1843.

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