



FIGURE 2. Field crew for the Kau forest bird survey of 1976. (Photograph by Miles Nakahara)

THE SURVEY AND ITS OBJECTIVES

By the mid 1970s it was generally acknowledged that any hope for preserving the unique Hawaiian avifauna and associated biota would require obtaining basic information on distribution, abundance, habitat response, and limiting factors. In order to meet these needs, Eugene Kridler, John L. Sincock, and J. Michael Scott conceived the idea of a state-wide forest bird survey in 1975, because such an approach was needed to identify areas requiring protection, research priorities, and management strategies. The Hawaiian Forest Bird Survey (hereafter HFBS), the results of which are detailed herein, began in 1976 (Fig. 2) on the southeast slopes of Mauna Loa, Hawaii, and ended in 1983 in the subalpine woodland of Mauna Kea, Hawaii. About one-third of the area covered by the HFBS had never been explored by ornithologists.

The principal objectives of the Hawaiian Forest Bird Survey were to determine for each bird species in the forests we studied: (1) distribution; (2) population size; (3) density (birds/km²) by vegetation type and elevation; (4) habitat response; and (5) geographical areas where more detailed studies were needed to clarify distributional anomalies and to identify limiting factors of various species. Subsidiary objectives were to (1) develop, improve, and continually evaluate

forest bird survey techniques and their statistical analysis; (2) determine the distribution of native habitat types; and (3) compare land-use patterns and habitat stability in forested areas.

The areas surveyed included all native forests above 1000 m elevation on the islands of Hawaii, Maui, Molokai, and Lanai, and the known distributional area for endangered forest birds on Kauai. We were able to stratify our sampling effort on Kauai because of the pioneering work of John Sincock (unpub. data, Sincock et al. 1984). The islands of Kahoolawe and Niihau were not surveyed because they lack native forest birds. We did not survey Oahu because of the low densities of native birds and the completion of a forest bird survey on military lands (Shallenberger and Vaughn 1978). Sampling efforts 10 times greater than we undertook on the island of Hawaii would have been necessary to make meaningful statements about some nonendangered native birds on Oahu, and it was decided that the money and manpower required would be better spent at that time on other needs.

THE NATURAL ENVIRONMENT

Because the study areas cover a great diversity of habitats and are distributed over a broad area, we include a general account of the major geological, climatic, and vegetation patterns. More