

I might begin again to describe the size of the profession by noticing that there are approximately 3,500 members of the Ecological Society of America. Remember, though, that those ecologists who are not primarily trained in *biology* are in general not members of the Society. So we can start in still a different place. The Committee on Research in the Life Sciences, set up by the NAS-NRC, and responsible to COSPUP, has been investigating the state of biology, and although the results of their survey are still being analyzed, we have some preliminary figures given us by Dr. Herbert Pahl, Executive Secretary of the Committee. At one stage in the analysis, out of 10,657 biologists who took doctoral degrees, 737 or 6.9% took their most recent degree in ecology. However, when asked what research materials they had used in their most recent doctoral training, 553 of the same ten thousand biologists said they had made "ecosystem studies," but 2,004 or 18.8% of the total said they had studied "populations of organisms." This larger group would include population geneticists and evolutionists, but these too are at least "ecologically oriented." It is interesting to notice that out of about 8,000 biologists who answered a different question, one about their current and future interests, 800 intend to change their research field. Of these 800, 74 will direct their future interests into ecology, ecology being one of the 5 major fields receiving changes of this sort. When this and much other information about ecologists and their work has been tabulated, a panel headed by Dr. Arthur Hasler will study and report on it to the Academy's Committee on Science and Public Policy (COSPUP).

Now, because we in NSF have about 600 and the Academy knows of 700, it might seem that our program is supporting most of the 700-odd ecologists who identified themselves to the NAS-NRC Committee. That this is certainly *not* the case is shown by a different survey, conducted by a group of biometeorologists representing the American Meteorological Society and assisted by a small grant from our Program. This group first queried the Smithsonian Science Information Exchange for current (late 1966) research projects in ecology. A preliminary run shook out some 14,000 projects, which were then carefully scrutinized by a group of professional ecologists and reduced to about 2,800 that were clearly ecological. Nearly every one of these, in other words, might have been proposed to NSF, and if of very high quality would have competed for the 5.6 million dollars allocated by our Program that year. Dollar amounts for all of these projects were not available, but in the attached table, summarizing these projects by agency, we see that a large number of agencies are supporting ecology. Though Interior seems to be in the lead, Agriculture and AEC are probably the real leaders; most of the projects they are supporting had not yet had dollar amounts attached to them in SIE's system. Collectively, those with known dollar amounts attached, accounted for three times as much ecology that year as NSF did. Somewhat vaguely but not surprisingly, we end up with the conclusion that there are thousands of ecologists working at thousands of projects, but it is very difficult to know precisely how many there are because the number depends on how one defines an ecologist.

As we turn to the vitally important question of training and recruitment, we must notice first that "professional ecology", if represented by a PhD. degree in ecology, would not include a large number of true professionals in agricultural science, forestry, wildlife management, or earth science, who work for a variety of agencies, local, state, and federal as well as industrial, without having needed the PhD. degree. Let us also emphasize what should by now be very evident, that ecology is a highly multidisciplinary science, so that it is often an arbitrary matter whether one calls biometeorologists, limnologists, or geochemists "professional ecologists" or not. Society affiliation helps a little, but not much. If I may cite my own case as typical, I am a member of 15 professional societies; and if society affiliation were any criterion, I could describe myself as a "professional" anything from anthropologist to zoologist. I believe my own case is typical if a little extreme; that is the way ecology is, and its practitioners *must* keep contact with several different disciplines.

In trying to answer this subcommittee's questions, therefore, it seemed essential to probe a little into the multidisciplinary nature of ecologists' training. The Study Committee of the Ecological Society had already made a survey of the 20 leading universities that train most of the PhD. ecologists in the U.S., and had come up with the pitifully small number of 112 PhD. ecologists as an average annual production. The Committee then had second thoughts and recently issued another questionnaire, this time more an opinion survey than a fact-finding operation, but this time also asking the questions about training in a different way.