

STATUS, RESEARCH AND MANAGEMENT NEEDS  
FOR ALIEN BIOTA: A SUMMARY AND COMMENTARY

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The speakers in this session discussed the adverse effects of alien organisms on native Hawaiian biota. Introduced invertebrates are known to be ubiquitous and abundant. Species establishment appears to progress geometrically as new introductions create new niches, and the effects on native forms are often vital, e.g. the disruption of pollination systems. While aliens need to be controlled, caution is advised as undesirable impacts can occur through use of chemical and biological methods. Solutions to problems involving invertebrates were suggested, including:

1. Don't despair of solving the problems; they need to be addressed.
2. "Further research is necessary."
3. Biological control should be used, but judiciously.
4. Quarantine procedures need improvement.
5. Public education is vital to program understanding and acceptance.

The first introduced plants were brought to the Islands by the Hawaiians over 1,500 years ago. Early explorers, settlers, and agriculturalists established many others, and foresters and horticulturalists also contributed new species. Problems associated with agriculture and horticulture are currently more important than those involving native ecosystems. Various land uses create environments for pest plants. Introduced plants may shade out native plants, constitute fuel for fires, and compete with native plants for water and energy. Solutions to problems with alien plants include preventing new introductions, restoring native plants, better public education, and more inter-agency cooperation.

Adverse effects attributable to alien vertebrates can be classified as:

1. Predation--animals upon animals;
2. Depredation--animals upon plants;

3. Competition between aliens and native biota. Alien vertebrates also serve as vectors of disease and weed dispersal and degrade plant and animal habitats. Actions needed include continued research; better quarantine procedures; the control of herbivores (by fencing, hunting, and/or trapping); and the controlled use of toxicants. Better coordination among administrators, researchers, and managers, and more cooperation among agencies are needed. Increased international communication and cooperation among those experienced with introduced vertebrate problems on islands might enhance efficiency and result in more rapid solutions.

The ancestors of today's native birds brought endoparasites and ectoparasites with them upon arriving in Hawai'i. New diseases and parasites have been added since. The present situation is not as bad as it could be in the future. Intermediate hosts and vectors maintain and transmit diseases and parasites and must be minimized. Other solutions include biological controls, additional research on individual islands, and the prevention of new parasite and disease establishment via a rigorous quarantine.

All speakers seemed in agreement that aliens are undesirable, that they are widespread, and that we are not doing enough to control them. The call for additional studies of native-alien interactions was loud and clear.

My views are as follows: Aliens are now a natural part and parcel of Hawaiian ecosystems and probably always will be, whether we like it or not. We know the problems and demand immediate solutions. However, the government cannot be all things to all people. We have to use the system and not fight it. We have to ask where the money is coming from and whether present governmental systems are responsive to alien problems. It is more productive to do things through channels than to make idealistic, unrealistic demands. Above all, we need to set priorities and implement actions starting from the top down. We cannot afford adversary relationships among the governmental, academic, and scientific sectors. We have to work together. It is said that the definition of a mummy is an Egyptian who is strapped for time. Everyone is busy; we cannot afford to argue. Rather, we have to make the best use of our time in seeking solutions to major problems.