

3. how living things relate to their physical environment.
4. how the above components interact to yield an observed condition at a given time and place.
- (b) *Impact of Plant and Animal Communities on Man.*—
 1. identifying and assessing the significance of specific ways in which natural communities affect man.
 2. the ways the constituents of natural communities affect man directly, or indirectly by affecting each other.
 3. ways in which the beneficial effects of natural communities on man can be perpetuated and enhanced.
- (c) *Impact of Man on Plant and Animal Communities.*—
 1. identifying and assessing the effects of specific and purposeful actions of man on natural communities.
 2. identifying and assessing the significance of the anticipated or inadvertent side effects of man's activities on natural communities.
 3. defining more and better ways for man to use and manage the resources provided by natural communities and their environment.
7. *Steps should be taken to bolster competence in taxonomy and systematics through expanded support for professional and subprofessional personnel and for such facilities as reference collections, field stations, mobile laboratories and data processing centers.*
8. *Research on methodology and instrumentation should be continued to:*
 - (a) improve sampling and analytical methods which lend themselves to statistical interpretation.
 - (b) increase utilization of remote sensing and other new sampling techniques.
 - (c) expand the use of computers for processing data.
 - (d) increase utilization of tools for systems analysis including simulations of ecosystem structure and functions.

Surveys

Benchmark Studies

The departments and agencies responsible for specific natural areas should accept the obligation to conduct or support a limited number of localized benchmark studies in major ecosystem types. Benchmark studies on non-Federal lands or on Federal lands where studies have not been funded by the controlling agency may be funded by Federal agencies as needed to support their missions.

2. *Federal agency "ownership" alone should not preclude benchmark studies on these areas by other agencies in support of their missions.*

3. *Whenever it is economical and practical, the responsible agency should, through contracts or agreements, utilize the competence of other agencies for appropriate portions of the benchmark surveys.*—For example, the Department of Health, Education, and Welfare with capabilities in air pollution surveys, the Department of Agriculture with similar capabilities in soil analysis and the Department of the Interior with competence in water inventories should be called upon by the responsible agency to perform these functions whenever it is more practical and economical to do so.

4. *The responsible agency should also maintain a record of the location of benchmark data to serve as a point of contact and to assure ready accessibility of information to the entire scientific community.*

Monitoring

1. *A monitoring program in natural areas should be a part of broader programs for monitoring the total environment.*—The FCST Committee on Environmental Quality is presently engaged in assessing current monitoring activities and developing proposals. A survey of the needs in natural areas should be included in this review.

2. *Insofar as it is practical and economical, agencies with competence and responsibility for programs dealing with specific environmental components should monitor these components in natural areas.*—For example, the Department of Health, Education, and Welfare should have responsibility for monitoring air; the Department of Agriculture for soil; and the Department of the Interior for water. In some cases, additional legislative authority for contracting portions of this effort may be required. Such authority would be useful in situations where it is more practical and economical to utilize competence outside the responsible agency.