

requires very different management approaches. The cumulative loss of wetlands as the direct result of development is fairly simple to control. It requires local or state legislation to regulate and control development of the habitat in question. The control of cumulative effects of insensitive and misinformed development practices is much harder. They are not easily observed in the short run, they are not limited spatially, and they take many forms. The following is intended as a set of guiding principles for developing programs in controlling cumulative effects of development in landscapes dominated by humanity:

1. Recognize that cumulative effects are a whole systems problem and approach control in an integrated manner by not dividing up the landscape into governmental departments of overlapping jurisdiction.
2. Institute landscape monitoring networks and data banks that can track change and isolate potential problems before they become critical. There is a strong need for "institutional memory" that can track change instead of relying on a few "old timers" recollections of the good old days.
3. Where ever possible institute control at the local level since it is closer to the problems and potential solutions, has a better understanding of all the actors involved and can be more responsive to the needs of the local population.
4. Develop local planning and decision making mechanisms that begin and end with complete watersheds. Decisions concerning development types, intensities, and timing should be made always with the entire watershed in mind. In large watersheds, this may require cooperation between separate local government bodies.
5. Pursue intensive funding of applied research in fields that typically deal with all aspects of planning, design, and construction, and other fields of human ecology and landscape ecology. Fresh, creative ideas are needed that can guide environmentally sensitive development.
6. Develop a network of local landscape extension personnel familiar with development techniques, environmental constraints, and research initiatives to consult with anyone manipulating the landscape to provide information that will