

approach to utilization of the landscape and adopt more performance oriented regulations (see for instance, Brown and Starnes, 1983).

In either case, management policies might be more clearly defined in light of much recent scientific research concerning the interrelationships of the various components of the landscape mosaic. To regulate and manage for only one component of the landscape is increasingly understood to be counter productive, and may in the long run result in the mismanagement of the whole. Just as wildlife management strategies have incorporated the concept of whole systems management rather than management for single species, wetland managers might begin to consider the whole landscape, even if the goal is protection of a single element like wetlands.

#### Energy Signatures of Landscapes

The landscape is a physical manifestation of inflowing energies of many types and quantities. The character of the mosaic of ecosystems that make up any landscape unit is a result of the types and quantities of driving energy flows that are characteristic of the unit. Sometimes referred to as its "energy signature", the types and quantities of energy inflowing drive landscape processes that develop storages of materials and energy, and ultimately exit the unit either as outflows of energy still having the potential to do useful work, or as degraded heat, having no energy potential.

Where the dominant energies are rain and surface waters, the landscape mosaic is characterized by a physical and biological pattern that makes maximum use of this driving energy. In high relief landscapes the patterns of stream and river systems that develop and the thermodynamic relationships of energy input and work performed by the stream in organizing and reorganizing itself in response to the energy in flowing water are well documented. High relief landscapes are characterized by the absence of wetlands where the dominant form of the waters energy is due to gravitational potential. However, in lower relief landscapes where gradients are lower, and water is slower moving, the landscape response is to organize wetland fringes and floodplains on rivers and streams to make maximum use of the chemical potential of flowing water.