Appendix 9-A

Additional Information on Preservation, Conservation, and Restoration

This appendix provides additional background information in three areas: the significant role local government can play in conservation and preservation; land trusts as potential partners for local governments; and considering threshold effects for planning restoration.

A Role for Local Governments: Conservation and Preservation in Lower Elevation Lands

Local governments and private landowners must be included when creating a diversified system of preserved areas. The lands owned by these two groups encompass the most underrepresented areas of the landscape in systems of land preservation. The legacy of land preservation in the United States has been weighted toward high-elevation or least productive lands (Scott et al. 2001). A recent study conducted by the State of Washington's Interagency Committee for Outdoor Recreation (IAC) (2001) found that over half of all public and tribal reservation lands are located above 3,000 feet. However, species richness tends to be greatest at lower, more productive elevations. More than 60% of the federally listed threatened and endangered species occur on private, lower elevation lands.

In addition, the IAC (2001) found that 40% of the state's 45.9 million acres are owned by federal, state, tribal, and local public entities, with federal lands making up the bulk of public land ownership. Only 6% of this acreage is aquatic, while 94% is upland. It is interesting to note that, as stated in IAC's report, Washington has the smallest amount of major public and tribal lands in the 11 western states, as well as the second lowest overall percentage of public and tribal lands following Montana. They add that although Washington is the smallest of the 11 western states, it has the second highest population in the West and the second highest population density following California.

Local governments could play a key role in conserving and preserving important lands in the lower elevations. In their paper *The Role of Local Government in the Conservation of Rare Species*, Press et al. (1996) make three claims about the need for local government involvement in land preservation:

> *(1) the scale of local and regional land use control and open-space acquisitions matches the range sizes of many rare, endemic species, (2) land acquisition is the most attractive approach to conserving many rare taxa, especially endangered flora, and (3) at least some local governments and non-governmental organizations have the policy capacity necessary to identify, acquire, and manage critical habitats for endangered species.*

They go on to acknowledge that conservation is always a land-use matter that requires local support. Local governments have the benefit of being able to broker larger land deals with other partners than they themselves could purchase alone. They can also acquire some smaller areas of habitat that add to a larger conservation landscape, fostering local sympathies for wildlife and habitats.

DeFreese (1995) recognizes that partnership with local government complements and enhances state and federal initiatives in conservation efforts. Brumback and Brumback (1988) critique early land acquisition programs in three states (New Jersey, Florida, and California), concluding that land acquisition efforts can overcome the legal and sociopolitical constraints of regulation and make it possible to reserve environmentally significant lands for the future.

Ian McHarg in 1969 was an early proponent of acquiring development rights, maintaining that "planned growth is more desirable, and just as profitable, as unplanned growth." He saw purchase as a way to make plans for development more acceptable to the public (Buckland 1987). "The need is growing for policies and institutions that can balance the requirements of economic development with the benefits of species, habitat, and open-space conservation" (Boyd et al. 1999).

Land Trusts Are Growing and Can Help

National land trusts such as The Nature Conservancy (TNC) and The Trust for Public Land (TPL) are working more closely in partnerships with local communities. Land trusts provide an opportunity for partnerships since they are growing in popularity and in numbers, thereby being able to preserve and manage more lands.

A census of land trusts by the National Land Trust Alliance counted 1,263 land trusts in existence across the country, a 42% increase from the decade before (www.lta.org). The census documented that permanently-preserved private land was approximately 6.4 million acres by the end of 2000. This was triple the 1.9 million acres preserved nationally by 1990. Of the 6.4 million acres, 52% was wetland. In Washington State, land trusts have also grown significantly. There are now 29 land trusts, while only 19 existed a decade ago.

The Nature Conservancy notes that the work of preservation is changing. They identify the need to target larger, and presumably more functional, preservation sites and to place a greater emphasis on representing all communities and ecological systems (Czech 2002).

Considering Threshold Effects for Restoration

In examining efforts in the Pacific Northwest to recover salmon habitat, Wu and Skelton-Groth (2002) offer some insights to the preservation and restoration efforts now underway. Conducting an empirical analysis that focuses on investments in riparian habitat for salmon recovery, they show that a large portion of conservation benefits would be lost when "threshold effects" are ignored. To explain the threshold effect, imagine a stream temperature that is necessary for healthy salmon populations. Until that

temperature is reached, salmon populations cannot survive, so the habitat has no value to salmon until the threshold is achieved.

Wu and Skelton-Groth state, "When a threshold effect is present, the marginal benefits of conservation efforts may be zero or increase slowly at first, and then more rapidly as conservation efforts approach the threshold. After the threshold is reached, additional efforts may have little effect on environmental benefits." They add, "When threshold effects are ignored, funds may be overly dispersed geographically, and funding levels in any given program area may be inadequate to reach the threshold needed for a significant environmental improvement." They argue that funds should be allocated so that the total value of environmental benefits is maximized, not the total amount of resources protected. To target funding based on physical criteria measured on site (such as erosion or water quality) ignores the threshold effect of conservation efforts in degraded systems.

For example, when addressing temperatures in streams, priority would be given to streams closer to threshold levels rather than those far from it unless, of course, enough funding were available to do additional work in a stream with significantly warmer temperatures to successfully reach the threshold level.

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