

The Intrinsic Landscape Aesthetic Resource System (ILARIS) is a GIS-based model designed to identify signature landscapes in any region of the world. The model accomplishes this analysis by performing three tasks: 1) cataloging the supply and magnitude of the intrinsic landscape features and forms, 2) determining the viewshed magnitude of these landscape forms and, 3) determining the level of rareness of these features in their regions and sub-regions.

In Webster's Dictionary, the word *Intrinsic* means: belonging to the real nature of a thing; inherent; essential. *Nature* means: the essential character of a thing; quality or qualities that make something what it is; essence. Nature in all languages simply means what is. ILARIS was designed to capture the inherent characteristic landscape forms that define a region's scenic character. It also assesses the scenic values and cultural heritage of a region. In essence, ILARIS is capable of giving a voice to the intrinsic landscape and capture the spirit of the place.

ILARIS is based on a methodology developed and refined at Jones & Jones Architects and Landscape Architects for over the past 30 years. This methodology has been applied on several landmark projects for a broad range of federal, state, and county agencies including NOAA, US Army Corps of Engineers, the Federal Highway Administration, The Oregon Department of Conservation & Development, and the San Juan County Planning Department. The methodology validates that areas possessing high aesthetic quality are those which most strongly and distinctively express intrinsic natural process and form.

The model allows for rapid assessment because is with the methodology is built into the modeling process, leaving only two aspects that need to be completed: 1) the spatial framework of regions, subregions, watersheds, sub-watersheds and basins that contain the landscape forms and, 2) the catalog of landscape forms.

The spatial framework is defined by the regime of systemic hydrographic units of any landscape. Using ArcHydro, a GIS-based hydrology and watershed model developed at the Center for Research in Water Resources at the University of Texas at Austin, very small tessellations (“mosaic tiles”) of watershed catchments are aggregated to form units of minimum distinctive intrinsic character at different levels of scale. Each of these small catchment areas is a fundamental unit ecologically and visually, and in small aggregations constitute each of the basin units in the study area. The boundaries of these basin units are then compared to Omernik’s Ecoregions, Fenneman’s Physiographic Regions, State Watershed Resource Inventory Areas and to the National Hydrography Dataset’s classification structural boundaries. The purpose of comparing the basin units to these land classification spatial structures is to make sure the basin units can work with and inform these other classification methods. By doing so, results generated by ILARIS can be integrated to other conservation models that use these national spatial classification structures.

The second task required to implement ILARIS is to determine which landscape features and forms are to be cataloged. There are five categories of landscape formations that

define the intrinsic character of a place, 1) Land Forms (i.e., Mountains, Cliffs, Drumlins), 2) Water Forms (i.e., Lakes, Streams, Oxbow Lakes, Springs), 3) Vegetation Forms (i.e. Madrona Stands, Eelgrass Beds, Pine Forests), 4) Wildlife Forms (i.e. Sea Lion Haulouts, Orca Whale Sightings, Bald Eagle Nests) and, 5) Cultural Forms (i.e. Historic Landmarks, Cultural Landmarks, Indigenous Cultural Landscapes). All five of these categories supply a landscape with the spatial distribution of the landscape formations that are inherent to a region. ILARIS serves to identify these signature landscapes and calculate the supply and magnitude of intrinsic landscape forms.

Viewsheds are also an important factor in the methodology behind ILARIS. The viewshed magnitude of a selected set of forms (such as mountain faces) is calculated to assess which basins can “see” a large number of the intrinsic landscape forms. The supply and magnitude of the landscape formations and the contribution of cumulative viewshed magnitude within a region identifies areas with a high landscape significance value.

The last analysis aspect of ILARIS is the determination of which intrinsic landscape forms are rare or unique in their sub-regions and regions. To calculate the rarity level, a determination is made as to whether a landscape form is found only in its basin unit. The model identifies which basin units in its region contain a rare instance of that landscape form. The uniqueness values sub model also produces a table recording why a basin unit is considered rare or unique.

These results of an ILARIS-based analysis will aid landscape conservation planning efforts by giving additional priorities to help inform outreach conservation strategies for each landscape region. In this way, the ILARIS model is designed to work in conjunction with other natural resource-based conservation models to add another significant layer to heretofore un-cataloged geographic resources. And to provide landscape architects with leadership tools for facilitating place-based community planning efforts as geographic designers of their regions.

Technically, ILARIS is built in Modelbuilder on the Arc9 platform and consists of 40 sub-models and 3 Python scripts. It was designed at Jones & Jones and included technical guidance and review from ESRI, the University of Texas at Austin, the Ohio State University, and Cal Poly Pomona.