

Human Impact On Arctic Vegetation Gates Of The Arctic National Park

By Ann Marie Odasz

While collecting field data in 1978 for a doctoral thesis, I observed impacted areas in the Arrigetch Creek Drainage, within the newly designated Gates of the Arctic National Park, Alaska. Similar impact also was observed on the shores of Circle Lake — the main float-plane access to the popular Arrigetch Peaks — and photographs were taken to record the conditions.

In addition, vegetation cover and species composition were recorded. Areas outside of the impacted sites were monitored also, as a control for data base use in future measurements of representative pre-impacted vegetation. Detailed data and close-up photographs recorded the inside of both control and impacted vegetation areas.

In 1981, I returned to investigate the many side-tributaries to the Alatna River. I



revisited Arrigetch Creek and rephotographed all sites investigated in 1978. The area covered included the shores of Circle Lake, the lichen knolls (a series of dissected terminal moraines at the mouth of the Arrigetch Creek), the main base-camps at the headwaters area of the Arrigetch Creek, and various campsites at the base of the Arrigetch Peaks themselves. Photographs 1 and 2 compare the impacted areas, 1978 and 1981. Close up photographs 3 and 4, taken outside of the impacted vegetation, contrast with photograph 5, and show the effect campers can exert on the extremely fragile vegetation of the arctic. Centuries old spruce trees were chopped down for evening campfires and lichens were trampled. In addition, such remnants of civilization as mole-skin wrappers, foil bits, twisties, old tin cans, and a stash of books and clothes were found scattered around the upper Arrigetch Creek Valley.

With concerned foresight, Gates of the Arctic Supt. Richard Ring and Chief Park Ranger Bruce Collins, initiated a cooperative study conducted during the summer of 1982. Monitoring of human impact was expanded to include other heavily used areas of the Park such as Summit Lake and

Environs, Doonerak Mountain and Bombardment Creek, and other popular backpacking, boating, and camping areas. In subsequent field seasons, additional heavily used areas will be monitored and added



to the existing data base.

Park Service personnel participated in the 1982 data collection. Seasonal Park Rangers Cheryl Green, David Buchanan, Maggie Yurick, Rob Hayden, and Geoff Smith received training in site location, vegetation mapping and analysis, and description of natural and disturbed habitat conditions. They quickly became proficient at identifying the sensitive vegetation types and the species occurring in areas that are most easily damaged.

Permanent transects were established in impacted areas with additional transect series running perpendicular to the main transects. Vegetation samples were located and read at regular intervals along the transect lines. Vegetation composition, percent cover, trail formation, species change, and other site characteristics were recorded following popular European methodologies. These transects could be monitored on a regular basis by the Park Service in order to detect changes in rates of impact.

The Park Service can use these empirical data for managerial decision making. Such studies can help avoid the "crisis-study" approach, where solutions to problems are sought only after alterations already have occurred.

Wise base-line inventory data collection at the early stages of park policy-making and management planning can provide a sound basis for mitigating the effect of human use. Human visitation to the area has increased since the establishment of the National Park. Visitor influx will expand considerably in the coming years.

Paradoxically, the very act of designating a new wilderness or park area involves an announcement that threatens newly proclaimed wilderness. Such areas excite and attract the venturesome spirit in man. In fragile ecosystems, like the arctic, man's rejuvenation of spirit and purpose is directly proportional to the destruction of other species of life. Mathematically : without controls nature is playing a "zero-sum" game.

This "Gem" of the National Parks System is probably our last true wilderness. Only by increasing visitor awareness and appreciation for the uniqueness and fragility of arctic vegetation can we hope that the visitors might respect the land — might want to preserve its wild integrity by "treading lightly."

If all else fails, controls and rationing might be the reluctantly arrived-at answer. Planned controls — such as already are in effect on some wild areas in the lower 48 states, can generate a "non zero-sum" game.

Odasz worked on contract for the NPS in the summer of 1982. She is completing her doctoral dissertation at the University of Colorado, Boulder, on "Patterns in Vegetation at the Treelimit Ecotone, Alatna River Drainage."