

NORTHERN ROCKIES GRIZZLY BEAR RECOVERY PROJECT

Craighead Wildlife-Wildlands Institute

In this new project, the Craighead Wildlife Wildlands Institute (CWWI) will inventory and evaluate grizzly bear habitat and establish population recovery goals for grizzlies in the three large wilderness complexes of the Northern Rockies. We will target grizzly habitat in the large cores of designated wilderness, the public lands that fringe and insulate these core areas, and corridors that could link the larger ecosystems biologically. The habitat studies combine botanical description by field crews with satellite imagery and data analysis in a Geographic Information System (GIS). This project extends and refines vegetation mapping techniques pioneered by the Institute in Montana's Northern Continental Divide Ecosystem and Alaska's Kobuk River Ecosystem.



John J. Craighead studies an image of Montana's Scapegoat Wilderness. Initiated in the late 1970's, this project pioneered the satellite mapping of wilderness vegetation.

Field research teams will be staffed entirely by Institute biologists. The integration of satellite imagery, field data and GIS analysis will proceed in collaboration with the Wildlife Spatial Analysis Lab at the University of Montana when necessary, and using CWWI's in-house GIS capability when possible. Our unsupervised images are based on red, near infrared, and mid-infrared reflectance bands to maximize resolution of vegetation types. Ground-truthed field maps will have a minimum mapping unit of 5 acres at a 1:24,000 scale.

The Craighead Wildlife-Wildlands Institute is a non-profit, multi-disciplinary research center in the Northern Rockies devoted to field-based ecological discovery and scientific activism. Founded in 1980 by Dr. John J. Craighead, the Institute's mission is to generate new ecological information and concepts, widely communicate these insights, and influence public policy and individual behavior in directions that preserve regional biodiversity.



THE NORTHERN ROCKIES GRIZZLY BEAR RECOVERY PLAN

THREE HUMAN LIFE SPANS AGO, the grizzly bear gathered berries, fished for salmon, hunted elk calves, dug tubers, and slumbered in winter dens over most of western North America. Today, in the lower 48 states, the great bear survives mainly in three remnants of wilderness habitat in the Northern Rockies.

CWWI SCIENTISTS have made many fundamental discoveries about grizzly bear demography, behavior, and habitat needs over the past four decades. Our new project is a multi-disciplinary, private sector program of research with the goal of establishing, for the Northern Rockies region, independent recovery targets regarding (i) the amount and distribution of bear habitat (top right) and (ii) total and ecosystem-specific population sizes (below).



Protecting bears and bear habitat are inseparable tasks in grizzly bear conservation.

POPULATION SIZE

POPULATION VIABILITY: If grizzlies are to persist in the long-term, the regional population must be large enough to maintain historical levels of genetic variation and to survive natural population fluctuations.

OBJECTIVE: We will use computer simulation and our extensive demographic database to rigorously estimate the number of bears that we must provide for in the Northern Rockies if our descendants, a century or more from now, are to know the grizzly.



Craighead Wildlife-Wildlands Institute
5200 Upper Miller Creek Road
Missoula, Montana 59803



GRIZZLY BEAR RECOVERY PROJECT

DISTRIBUTION OF BEAR HABITAT

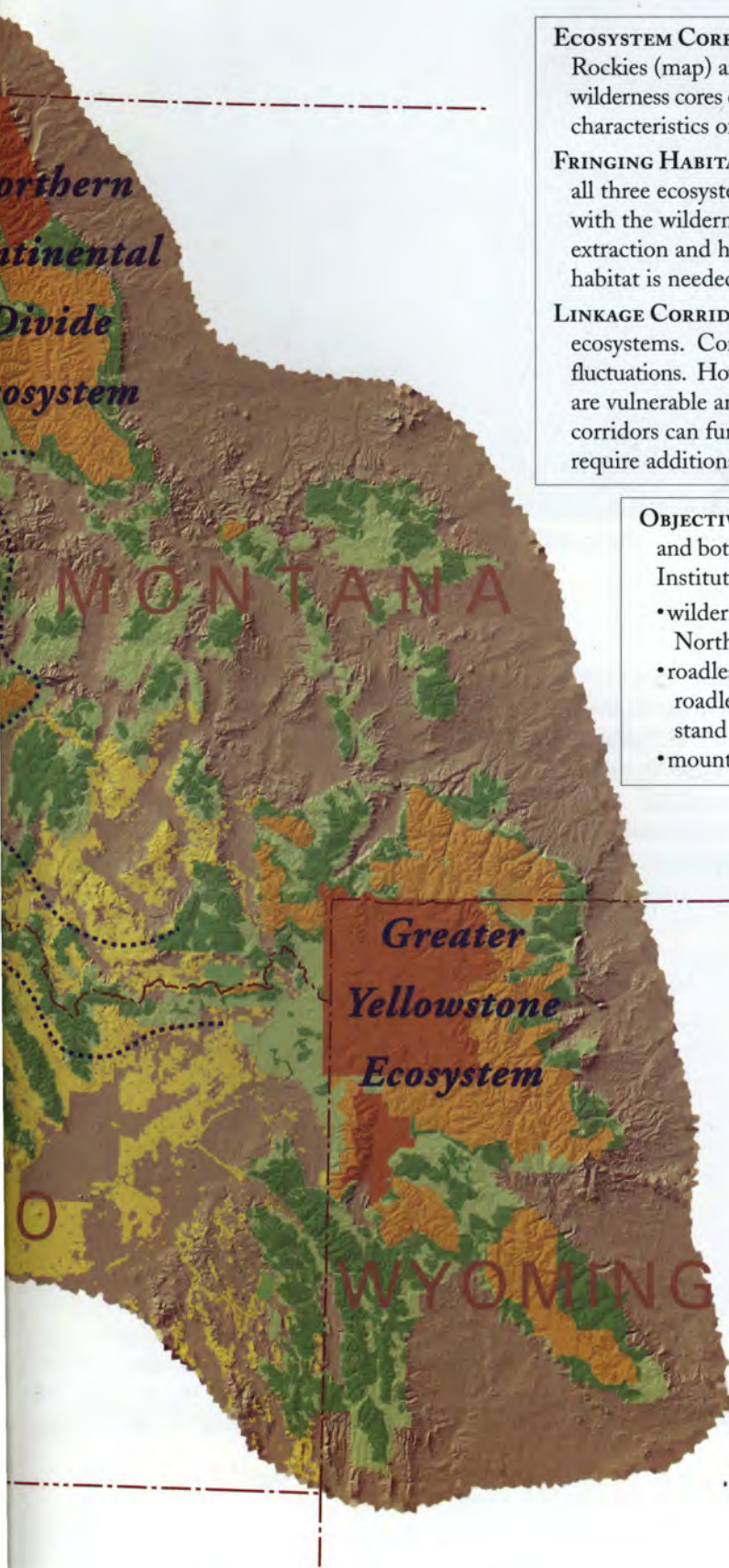
ECOSYSTEM CORE AREAS: The three great wilderness ecosystems of the Northern Rockies (map) are the last refuge for the grizzly south of Canada. Although the wilderness cores of these ecosystems receive maximum protection, the comparative characteristics of grizzly bear habitat in these core areas are largely unknown.

FRINGING HABITAT: We know that public lands fringing the wilderness cores of all three ecosystems contain grizzly habitat. Many such areas are contiguous with the wilderness cores, but may soon be fragmented and isolated as resource extraction and habitat alteration proceed. A quantitative inventory of fringing habitat is needed to prioritize areas for additional protection or restoration.

LINKAGE CORRIDORS: Ideally, corridors of habitat should connect the major ecosystems. Corridors would allow genetic exchange and stabilize population fluctuations. However, like fringing de facto wilderness, potential linkage corridors are vulnerable and inadequately inventoried. We need to know if proposed corridors can function as biological connectors under current land-use plans or require additional protection or restorative management.

OBJECTIVES: We will use satellite remote sensing, GIS analytic methods, and botanical survey, as pioneered by the Craighead Wildlife-Wildlands Institute, to map, inventory, and evaluate grizzly bear habitat in:

- wilderness cores in the Greater Salmon-Selway, Yellowstone, and Northern Continental Divide Ecosystems
- roadless and multiple use areas that fringe these cores (particularly roadless areas that insulate the cores, radiate out as peninsulas, or stand apart as islands)
- mountain corridors connecting these ecosystems.



CORE, FRINGE & CORRIDOR

ECOSYSTEM CORE AREAS

- National Park
- National Forest Wilderness Area

FRINGING AREAS

- National Forest Roadless Area
- National Wildlife Refuge
- Other National Forest Land
- Bureau of Land Management Land

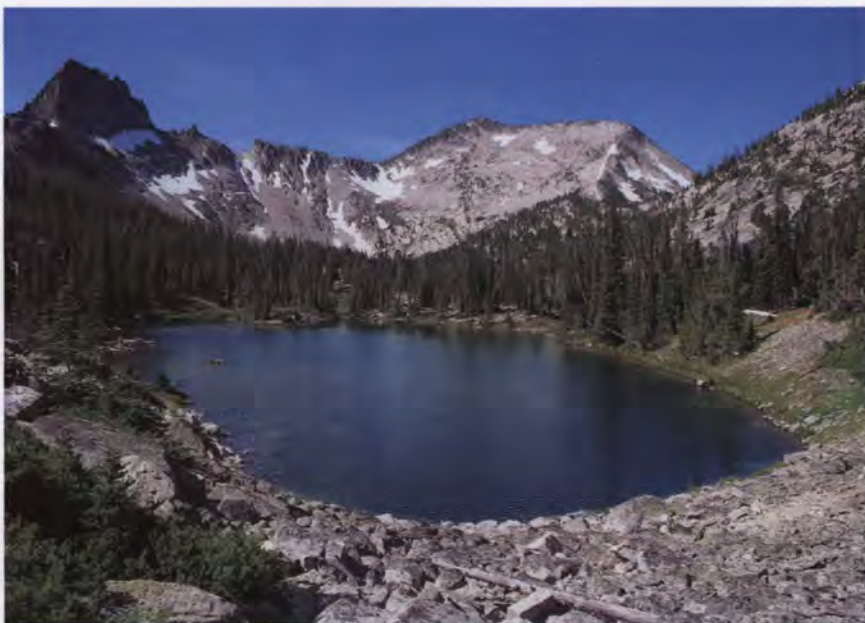
(incomplete coverage)

LINKAGE CORRIDORS

INTO THE SALMON - SELWAY: LAUNCHING THE NORTHERN ROCKIES GRIZZLY BEAR RECOVERY PROJECT

Grizzly bears once roamed all the valleys and mountains of the Salmon-Selway Ecosystem. No one knows how many there were, or the number of grizzlies the area might now support if a population could be fully restored. However, it is reasonable to hope for a population comparable to those now persisting in the Greater Yellowstone or Northern Continental Divide Ecosystems. Even 200 bears would represent a 20-25% increase in the number of grizzlies surviving south of Canada. Furthermore, many biologists think that the grizzlies now isolated in Yellowstone are vulnerable to extinction in the long term without the genetic and demographic interchange that a population in the Salmon-Selway might provide.

In 1995, the U.S. Fish & Wildlife Service (USFWS) proposed to transplant 20-50 bears into the Salmon-Selway over a 5-year period. We cannot imagine another action with comparable impact on grizzly bear conservation in the Northern Rockies than this reintroduction *preceded* by informed and comprehensive protection of critical bear habitat in the Salmon-Selway.



Bighorn Crags: Salmon-Selway Ecosystem



Indian Paintbrush



Alpine Forget-Me-Nots

Appropriately, therefore, in phase one of CWWI's recovery project, we are concentrating on fully describing grizzly bear habitat in the 40,000 mi² Salmon-Selway Ecosystem. Although it contains the largest roadless area in the lower 48 states and is essential to the maintenance of biodiversity and biological connectivity in the Northern Rockies, the Salmon-Selway has never received the holistic scientific attention that has been showered on the Greater Yellowstone and Northern Continental Divide Ecosystems. There is need and opportunity for a private sector organization like ours to expand and integrate knowledge of an ecosystem fractured by state borders, U.S. Forest Service regional boundaries (Regions 1 and 4), and the administrative limits of the Boise, Salmon-Challis, Sawtooth, Payette, Nez Perce, Bitterroot, Clearwater, and Lolo National Forests.



Army Cutworm Moths

Beginning in 1996, CWWI field biologists will trek throughout the Salmon-Selway Ecosystem to ground-truth satellite imagery, collect data on the distribution of key bear foods (plant and animal), and describe general landscape characteristics.

Our broad objective is to prioritize areas in the Salmon-Selway for protection and restoration of critical grizzly bear habitat. The specific objectives of our field effort are to 1) extend an existing land cover/vegetation classification* to contiguous areas in south-central Idaho; 2) refine and verify this land cover/vegetation classification for the entire Salmon-Selway; 3) evaluate the potential of whitebark pine forests to produce pine nuts (an important bear food); and 4) evaluate the nutritional potential of army cutworm moth aggregations (another key bear food).

* Developed from ground-truthed satellite imagery for the northern Salmon-Selway by the U.S. Forest Service.

