

Geographic Information Systems Program

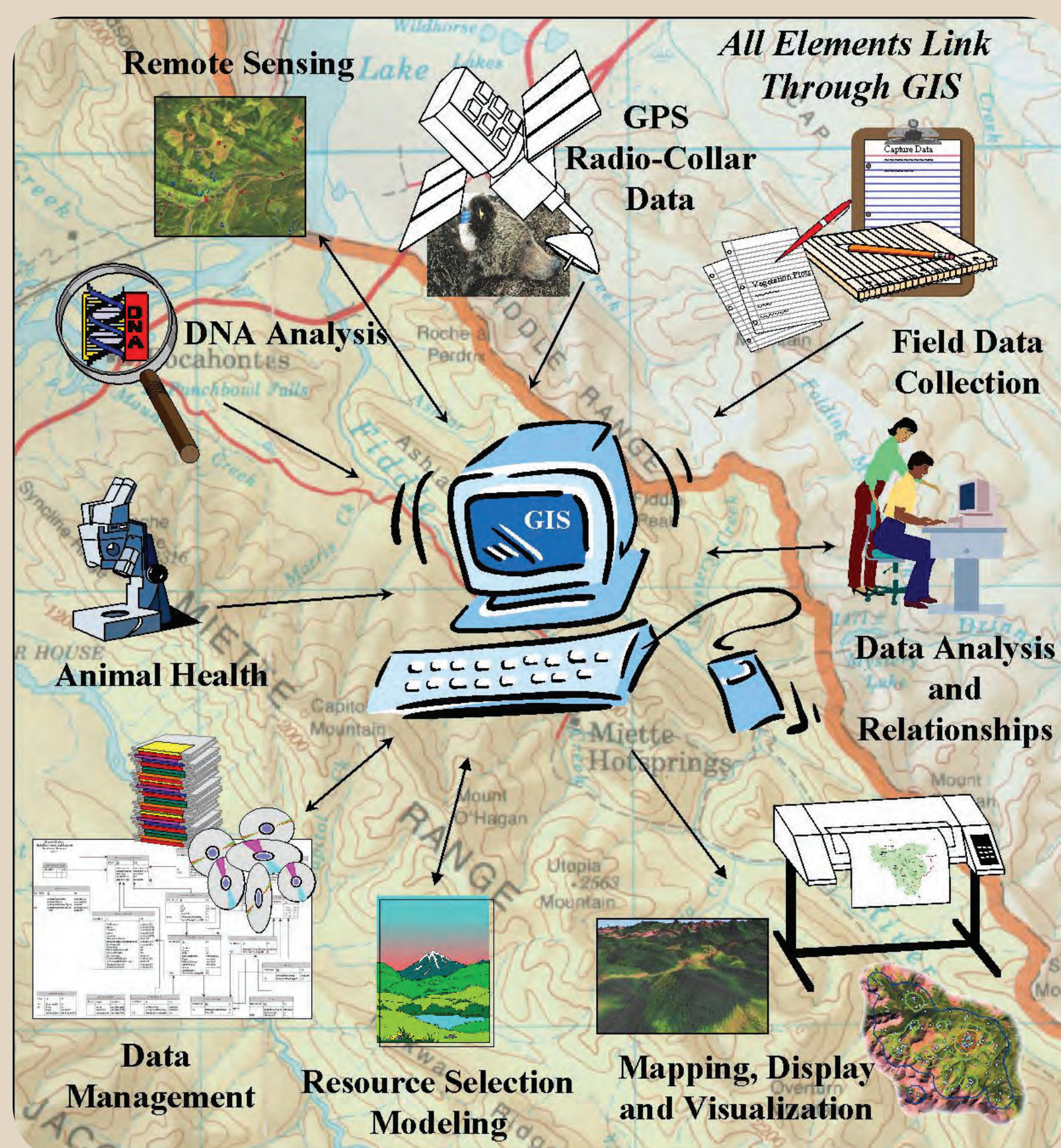


Supporting the research activities within Foothills Research Institute

Underlying the GIS Program is a strong belief in the practice of sound data management practices. Good data management aids us in deriving useful information that can assist in making sound management decisions across all program areas.

Some highlights include the following:

- The management of Fish and Watershed data using the Archydro model. This is a collaborative database effort that is based on combining regional data with partners such as Jasper National Park.
- The Geographic Information Systems Working Group, representing government and industry, finalized a draft vegetation data model which will help standardize how data is stored, leading to information that is more consistent, sharable, and transferable.
- The program has worked with the Foothills Landscape Management Forum to develop an ArcIMS internet mapping website that displays overview maps relating to access and other features for association users. Other demonstration mapping websites or "services" have been developed for Fish and Watershed, Grizzly Bear and other research programs.
- The design and creation of a grizzly bear database that consolidates grizzly bear data. The database structure has been used as a guide by other partnering organizations for wildlife collar databases.
- Creation of the physical structure of the Traditional Cultural Studies spatial database was completed with test referral processes. Global Positioning System (GPS) and other field-related training to field data collectors was completed.
- Five years of growth and yield data is loaded in the Foothills Growth and Yield database. This database will undergo a data migration into a new updated database format for improved data integrity in 2007.
- GIS and data management workshops such as the Natural Resource Data Management workshop for partnering organizations and staff.

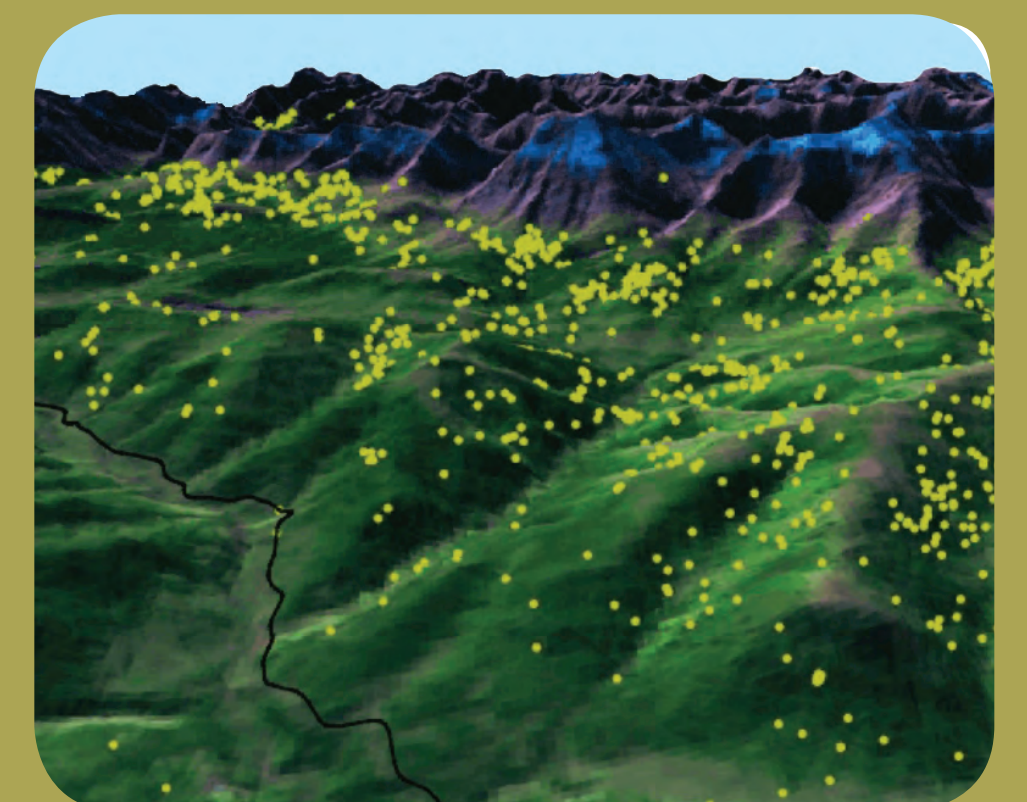


GIS and Grizzly Bears

GIS is an essential tool for increasing understanding of grizzly bears within the study area and for extending understanding to managers seeking to accommodate the needs of grizzly bear in land and resource planning. More than 60,000 grizzly bear locations have been collected using GPS radio collars. By overlaying these points with landscape models in a GIS, questions relating to grizzly bear movement, interaction, habitat, and population viability can be readily explored. Innovative cartographic visualization tools such as 3D Analyst, World Construction Set and Visual Nature Studio help to communicate the research findings to a wider audience.

What does landscape look like to a grizzly bear? While aerial orthophotos of the study area provide a useful cartographic aid, imagery collected from Landsat 7 TM satellites forms the basis of landscape modeling. Greg McDermid from the University of Calgary has created the Integrated Decision Tree map by classifying the raw imagery into 13 land cover classes. The classified image is then combined with vector GIS layers such as hydrography (streams), linear access features, (road, and seismic cutlines), energy facilities such as pipelines and well sites, and AVI (Alberta Vegetation Inventory), a fine-scale forest cover and vegetation layer. These tools give practitioners a much better understanding of how grizzly bears use the landscape.

The capability of GIS to store, query, analyze, and visualize data is an integral part of all research of Foothills Research Institute.



Foothills Research Institute is a leader in developing innovative science and knowledge for integrated resource management on the forest landscape through diverse and actively engaged partnerships.

The Foothills Research Partnership Ltd. landbase is located in west-central Alberta, and is based in the resource community of Hinton, some three hours west of Edmonton. It covers roughly 2.75 million hectare (27,500 square kilometres), and embodies Jasper National Park of Canada, the Willmore Wilderness Park, and the Forest Management Area of Hinton Wood Products, a Division of West Fraser Mills Ltd. It also includes some provincial "crown forest management units" and the Hinton Training Centre's Cache Percotte Training Forest. Within its boundaries are three forest areas—boreal, montane, and sub-alpine—and many forest uses including timber, petroleum, and coal extraction, tourism, and recreation.

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