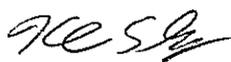


**ARIZONA GAME AND FISH DEPARTMENT  
HABITAT PARTNERSHIP PROGRAM  
HABITAT ENHANCEMENT AND WILDLIFE MANAGEMENT PROPOSAL**

<b>PROJECT INFORMATION</b>	
<b>Project Title:</b> Ohaco Ranch Grassland Restoration Project (funding for 2 <sup>nd</sup> half of the \$100,000 request)	<b>Project No.</b> 07-102
<b>Region/GMU:</b> Region I Unit 4A	<b>HPC:</b> Winslow
<b>Project Type:</b> Pinyon/Juniper Removal to restore grasslands	
<b>Project Description:</b> The project will restore 8,620 acres Plains Great Basin Grassland that has been invaded by Pinyon/Juniper (P/J) woodlands. The 8,620 will be spread across approximately 11 sections. The goal is to create several continuous mosaic grasslands that will tie together grasslands on the north (Hopi 3 Canyon Ranch) to the grasslands on the south (Forest Service Land) of the Ohaco Ranch. T	
<b>Wildlife Species to Benefit:</b> Elk 70%, Pronghorn 20%, Deer 10%	
<b>Possible Funding Partners:</b>	
<b>Implementation Schedule:</b> currently on schedule <b>Beginning:</b> Summer 2006 <b>Completed:</b> Summer 2009	
<b>PROJECT FUNDING</b>	
<b>SBG Funds Requested:</b> \$ 50,000.00	
<b>Cost Share Funds:</b> \$ 520,000.00	
<b>Total Project Costs:</b> \$ 620,000.00	
<b>PARTICIPANT INFORMATION</b>	
<b>Applicants:</b> Ken Clay  <b>Telephone:</b> 928 367-4281	<b>Address:</b> AZGFD 2878 E. White Mtn. Blvd Pinetop, AZ 85935
<b>AGFD Contact and Phone No.</b> (If applicant is not AGFD personnel)	
<b>Coordinated with:</b> Ohaco Cattle Company	
<b>Applicant's signature:</b> 	<b>Date:</b> FEB 27, 2007

**SEND COMPLETED APPLICATIONS TO:**  
Game Branch  
2221 W. Greenway Rd.  
Phoenix, AZ 85023  
mdisney@azgfd.gov

### **NEED STATEMENT/PROBLEM ANALYSIS:**

Juniper encroachment is a major problem with grasslands and meadows in Northern Arizona. Plains and Great Basin Grassland make up a large percentage of Navajo and Apache Counties. Encroachment of junipers reduces the productivity of grasslands and can reduce the ability of water to percolate into the water table, increasing run off and sedimentation into local watersheds.

As a result of juniper encroachment into historic grassland, forage production for livestock and wildlife is reduced substantially. This situation reduces the economic value of private rangelands, contributing to the landowner's decision to sell important grassland habitats to private developers.

It is also well documented that some grassland and savanna habitats in much of Arizona have been degraded primarily by tree invasion. The Arizona Game & Fish Department has placed grasslands as a high priority for bird assemblages and pronghorn. Currently the Department is working to maintain grassland habitats and restore these habitats as opportunities arise by partnering with private landowners and other agencies.

Although the encroachment by junipers can be addressed through chaining or cutting, the juniper carcasses still present an obstacle for pronghorn by reducing sight distance and providing hiding cover for predators.. Pronghorn are adapted to "sight and flight" behavior and select habitats that favor this behavior. Areas containing landscape features, such as thick vegetative cover, that hinder visibility or the ability of pronghorn to run at full speed, are typically avoided (AZGFD Tech. Report #13). The proposed method of treatment eliminates the need for a second treatment to reduce carcasses below the recommended 18" upper limit of slash height.

Pronghorn are isolated from moving in or out of the Unit 4A due to Chevelon Canyon on the east, and Clear Creek to the west. Since this pronghorn herd is isolated on this "island", it is very important to address their habitat needs to ensure healthy populations. This proposed project addresses these concerns in several aspects: First, it will expand grassland habitat by removing juniper trees that are less than 16 inches drc. Second, it will address the most recent P/J encroachment on existing grasslands where grassland habitat conditions and values are being compromised. Third, it will address the need for better movement corridors between Forest Service lands and privately owned ranches to the north. Currently the Forest Service land is a small percentage of the pronghorn habitat in Unit 4A. However, there is great potential to expand suitable grassland habitat further south onto the Forest with landscape scale grassland restoration projects.

### **PROJECT OBJECTIVES:**

The results of this project will restore 8,620 acres of grassland near the center of Unit 4A. The project area is at the southern end of the grassland habitat in Unit 4A. Since grasslands are considered a habitat of concern for the Arizona Game and Fish Department it is important to address P/J encroachment. The southern portion of grassland habitat on the Ohaco Ranch is above 6100 feet in elevation where P/J invasion becomes prevalent, due to precipitation patterns. Grasslands within this precipitation band are more diverse and productive. The end result is higher quality habitat for grassland species.

The focus of this project is two fold, increase the acreage of grassland habitat on the Ohaco Ranch, and to address P/J invasion on some of the existing grasslands on this Ranch. The end result will be a net gain of 8,620 acres of grasslands that can be used by suite of grassland obligate species.

This project is part of an overall landscape restoration project that is occurring on the Ohaco Ranch. In the late

90's the Ranch, with the cooperation of the Department, Forest Service, and NRCS, initiated a water project to address water distribution problems on this Ranch. To date, there has been over 30 miles of under-ground pipeline installed on this 42,000 acre Ranch. This state of the art water system current provides wildlife perennial water to over 92% of the land area on the Ranch. The last phase of the water distribution project will add over four more miles of pipeline and three more drinkers. This will increase this perennial water coverage to nearly 100% by the end of 2006. With the water distribution component already in place with this large scale water development, this proposed grassland restoration project would address the food and cover component on this Ranch for grassland species.

This project was started in October of 2006. The contractor has run one machine from October through January and has completed about two sections. There are currently two machines working on this project. This project also stimulated interest in a federal funded project to occur on the Hopi 3 Canyon Ranch. That project will clear about 1200 acres P/J's in the same manner. The project design is to link the Ohaco Project on there north east boundary to the Hopi 3 Canyon Ranch.

#### **PROJECT STRATEGIES:**

The project will restore 8,620 acres Plains Great Basin Grassland that has been invaded by Pinyon/Juniper (P/J) woodlands. The treatment will be completed using a drum grinder attached to a rubber tract skid steer (attached photo and specifications). The drum grinder chips up the trunk of the tree leaving the branches that holds more soil moisture creating a microclimate that is conducive to the production of cool season grasses and forbs. Approximately 90% of all junipers that are located in deep soils, and classified as historic grassland will be removed. On sites that have a shallow soil depth and a greater potential for browse production, all junipers within 10 feet of a browse plants will be selectively removed to reduce competition. Stringers of trees associated with shallow soils will be left to provide thermal cover and travel corridors for mule deer and elk. The objective in historic grassland habitat is to remove a majority of recent juniper trees while retaining large old growth junipers with a diameter at root crown (drc) of 16 inches or greater. This treatment will leave approximately 1 tree per 5 acres upon project completion in the openings. Approximately 100 acres within each treated section will be left alone (see attached map).

#### **PROJECT LOCATION:**

The project will occur on the Ohaco Ranch that includes approximately 42,000 acres of contiguous land, of which ≈25,600 acres are deeded land owned by the Ohaco family. The majority of the land directly surrounding the project area is State Trust Land that the Ohaco family leases. This Ranch is in the center of Unit 4A and ranges from both the eastern and western boundaries in this Unit. See the attached map for the treatment area. On the map there are 13 full section and one ½ section that will receive treatment. Within these sections there are areas that will be left untreated. These untreated areas are outlined in red. Everything else in these sections will be ground.

#### **LAND OWNERSHIP AT PROJECT SITE (Please state specifically if PRIVATE PROPERTY and provide landowner's name):**

Ohaco Ranch

#### **IF PRIVATE PROPERTY, IS THERE A STEWARDSHIP AGREEMENT BETWEEN THE LANDOWNER AND THE DEPARTMENT?**

Yes

#### **HABITAT DESCRIPTION:**

Pinyon/Juniper habitat with large grassland openings. The area has a good browse component made up of

cliff rose, winter fat, mahogany and morman tea.

**ITEMIZED USE OF FUNDS:**

<b>Fund</b>	<b>Amount</b>	<b>Cost</b>	<b>Results</b>	
LIP	\$375,000	\$58.00/acre	6465 acres restored	Funded
SBG Fund 2006	\$50,000	\$58.00/acre	862 acres restored	Funded
AZGFD IIPAM	\$25,000	\$58.00/acre	431 acres restored	Funded
Arc Survey	\$120,000	\$18.00/acre	Federal requirement	Funded
SBG Fund 2007	\$50,000	\$58.00/acre	862 Acres restored	Requested
Total	\$580,000		8620 acres restored	

**LIST COOPERATORS AND DESCRIBE POTENTIAL PARTICIPATION:**

- NRCS provided para-arc training to 21 AZGFD employees. This training will be use to start the arc clearance for this project. Arizona Game and Fish will provide funds for the remaining area in need of arc clearances. As of March 1, 2007 about 6000 acres has been arc cleared.
- Arizona Game and Fish will provide the coordination for project.
- Arizona Game and Fish along with Jim Ohaco will design and plot the project

**PROJECT MONITORING PLAN:**

The first method proposed to measure project effectiveness, will be annual big game surveys. These surveys are used to document changes in the population, including recruitment and overall distribution. With an additional 8,620 acres of grasslands, there is an expectation that wildlife species that utilize these habitats will expand into these new areas. With higher quality habitat, production and recruitment should be increased, resulting in a healthier overall population.

The second method is to monitor the herbaceous diversity created by this project. This monitoring will take place on plots within the project area. The goal is to identify species diversity and production within treated area as compare to untreated areas. This will be done using a forage monitoring study.

**PROJECT MAINTENANCE:**

Tree will be cut and ground into mulch. Resprout on these species is minimal and will not need further treatment.

**PROJECT COMPLETION REPORT TO BE FILED BY:**

Ken Clay  
AZGFD Region I

**TREE SHEARING (AGRA-AXE, PUSH) PROJECTS (see attached worksheet):**

## ARIZONA GAME AND FISH DEPARTMENT TREE SHEARING WORKSHEET

PROJECT NAME: Ohaco Ranch Grassland Restoration Project

1) What is the estimated acreage of the project?

8,620 acres

2) How are the trees to be cleared? (agra axe, chain saw, push):

Drum Grinder attached to a rubber trac skid steer

3) What is the estimated number of trees per acre?

20 to 30

4) Describe trees to be cleared (species, estimated diameter, single stem, multi-stem):

pinyon pine / Utah juniper, under 16", single and multi-stemmed

5) Describe terrain (slope, soil type, rocks, etc.)

focus of project is in deep soils, mild slopes, some rocky area

6) Please list any special land management status for the project site (i.e. Wilderness, National Park, National Monument, etc). If private land, list landowner.

NA

7) Please provide the following information about access to the proposed site:

Type of access (mark one):  2x4 vehicles  4x4 only  foot only\*\*

\*\*If foot access only: Distance in miles:      Approx. hiking time:

Does access to this site require crossing private or tribal lands?  YES  NO

Is the site relatively accessible for tree shearing equipment?  YES  NO

Please describe any restrictions to public access:

NA

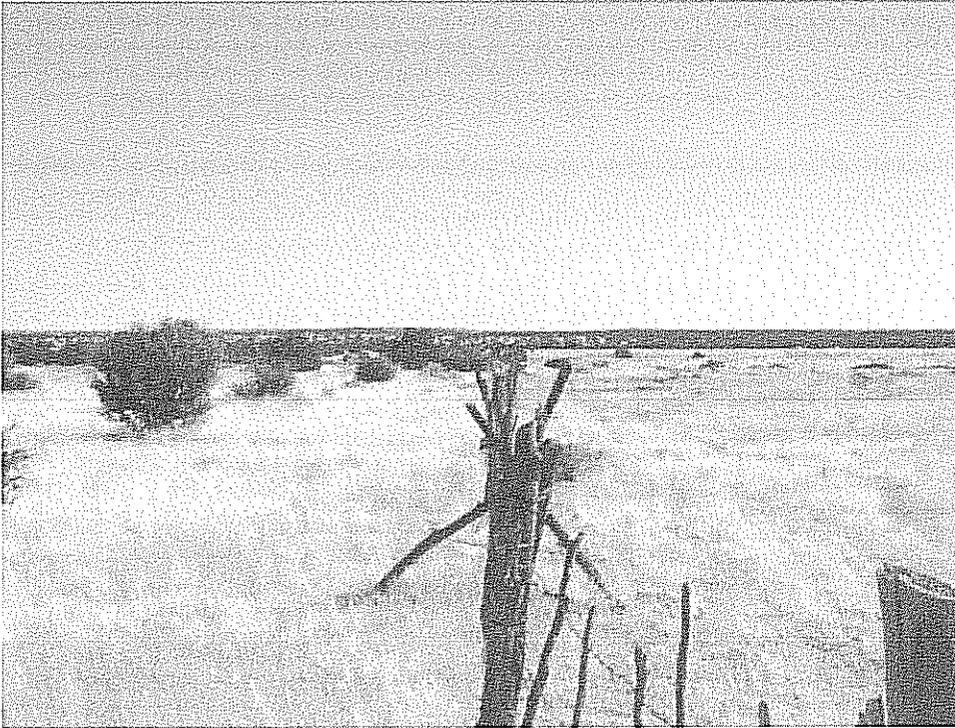


Figure 2. This photo shows the difference between the treated side (right) on the Ohaco Ranch and the untreated side (left) on Hopi 3 Canyon Ranch.

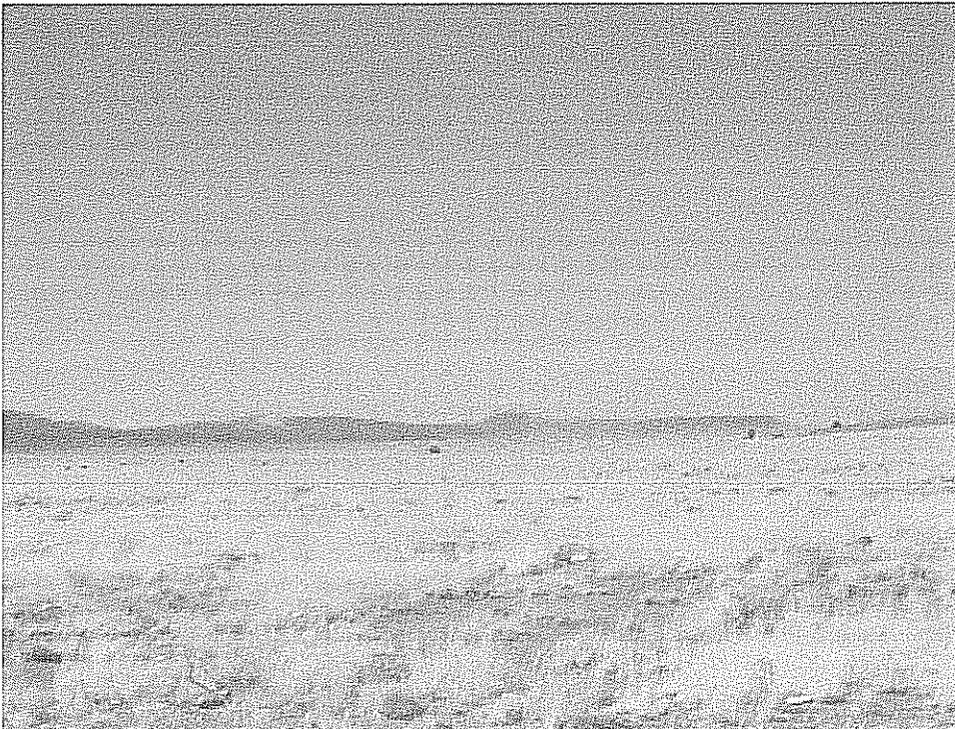


Figure 3. This photo shows an area that resembles a short to mid grass prairie indicative of grasslands on the Colorado Plateau; this is dominated by blue grama. This is located on the northwest portion of this section of the Hopi 3 Canyon Ranch.



Figure 4. This is a photo of the roller chopper mounted to a skid steer loader large enough to handle the weight of the equipment.



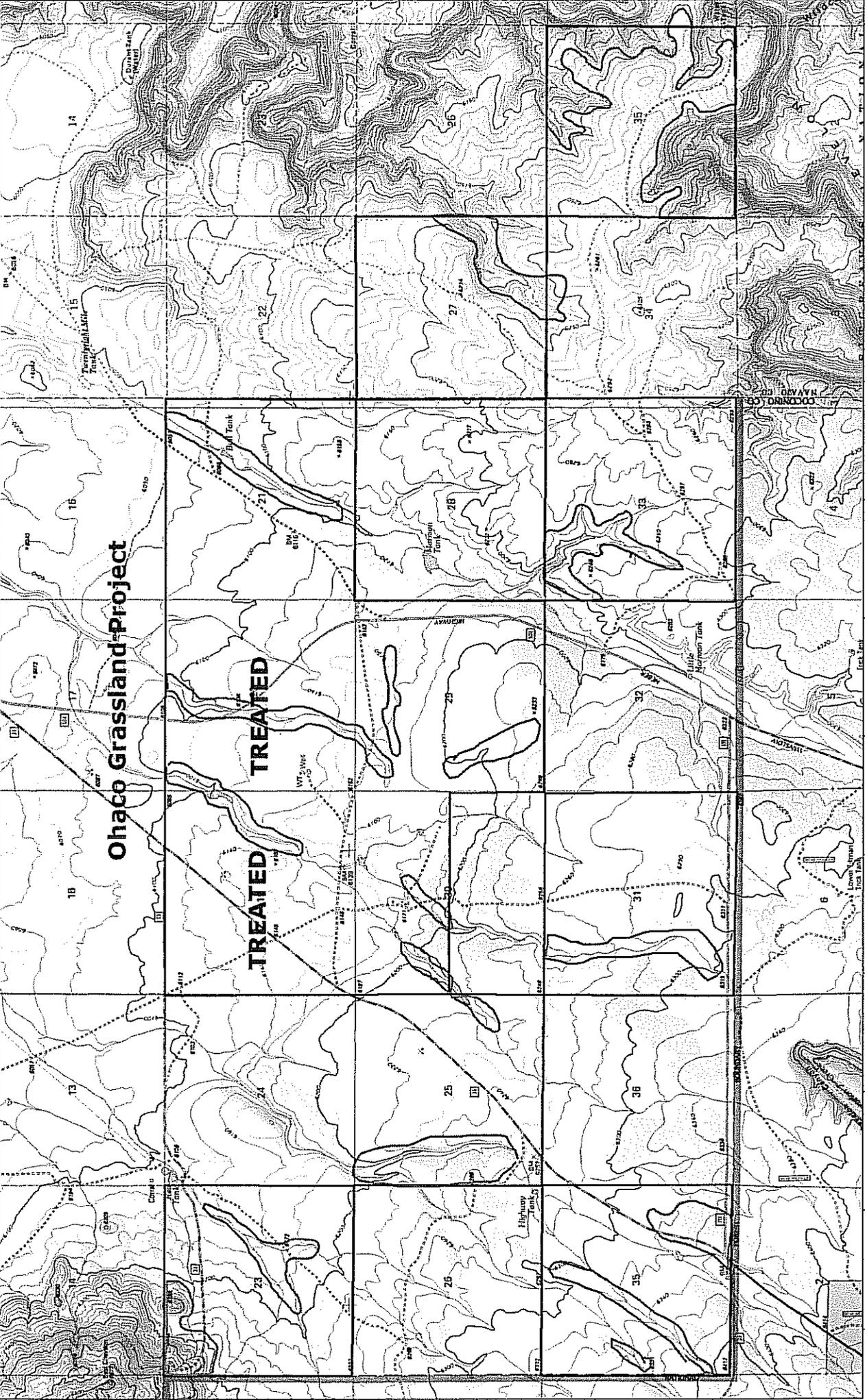
Figure 5. This photo shows the roller chopper as it starts to mechanically remove to juniper tree.



Figure 6. This photo shows the results of mechanical removal using the roller chopper. This tree was approximately 15 feet tall with a 15 foot multi-stemmed crown.

TOPOI map printed on 02/27/07 from "PI treatment.tpo"

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1150000N 1160000N 1170000N 1180000N 1190000N 1200000N 1210000N 1220000N 1230000N 1240000N 1250000N 1260000N



Map created with TOPOI © 2003 National Geographic (www.nationalgeographic.com/topo)