



Resolution No. 07-2006-246

**RESOLUTION OF THE
WHITE MOUNTAIN APACHE TRIBE OF THE
FORT APACHE INDIAN RESERVATION**

(Requesting P.L. 93-638 Contract for U.S. DOI Geographic Information Systems program)

WHEREAS, pursuant to Article IV, Section 1(a) of the Constitution of the White Mountain Apache Tribe, *inter alia*, the Tribal Council has the authority to represent the Tribe and act in all matters that concern the welfare of the Tribe; and

WHEREAS, the Fort Apache Agency of the U.S. Department of Interior, Bureau of Indian Affairs currently operates a Geographic Information Systems program, consisting of three employees; and

WHEREAS, pursuant to Resolution No. 05-2006-136, the Tribal Council did establish a Division of Natural Resources (DNR); and

WHEREAS, the Tribe's DNR has the technical expertise to undertake the GIS program, which includes storing, organizing, analyzing and displaying geographically referenced resources and assets; and

WHEREAS, a GIS program under the Tribe's DNR would greatly benefit from the technical assistance provided by the GIS program, including natural resources management, land operations, emergency services, transportation management, land use planning, homeland security, agriculture, facility management, water resources, demographics, historic preservation and cultural resources, range and wildlife management, and fire management; and

WHEREAS, the Director of DNR and staff did this day present a proposal to contract the Agency's Geographic Information Systems program pursuant to P.L. 93-638 (25 U.S.C. § 450 *et seq.*); and

WHEREAS, the Tribal Council finds that contracting for the GIS program pursuant to P.L. 93-638 is in the best interests of the Tribe, its natural resources and data management.

BE IT RESOLVED by the Tribal Council of the White Mountain Apache Tribe that:

1. A contract for the Agency's GIS program is hereby requested from the U.S. Department of Interior pursuant to P.L. 93-638 (25 U.S.C. 450 *et seq.*).
2. The NRD, together with the 638 Negotiating Team, is hereby directed to initiate negotiations with the U.S. Department of Interior.

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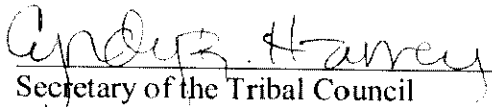
3. The Director of the NRD is hereby directed to develop policies and procedures for operating a GIS program.

BE IT FURTHER RESOLVED by the Tribal Council of the White Mountain Apache Tribe that the Chairman, or in his absence the Vice-Chairwoman, is hereby authorized to execute any and all documents necessary to effectuate the intent of this Resolution.

The foregoing resolution was on July 19, 2006, duly adopted by a vote of TEN for and ZERO against by the Tribal Council of the White Mountain Apache Tribe, pursuant to the authority vested in it by Article IV, Section 1 (a), (c), (s), (t) and (u) of the Constitution of the Tribe, ratified by the Tribe September 30, 1993, and approved by the Secretary of the Interior on November 12, 1993, pursuant to Section 16 of the Act of June 18, 1934 (48 Stat. 984).



Chairman of the Tribal Council

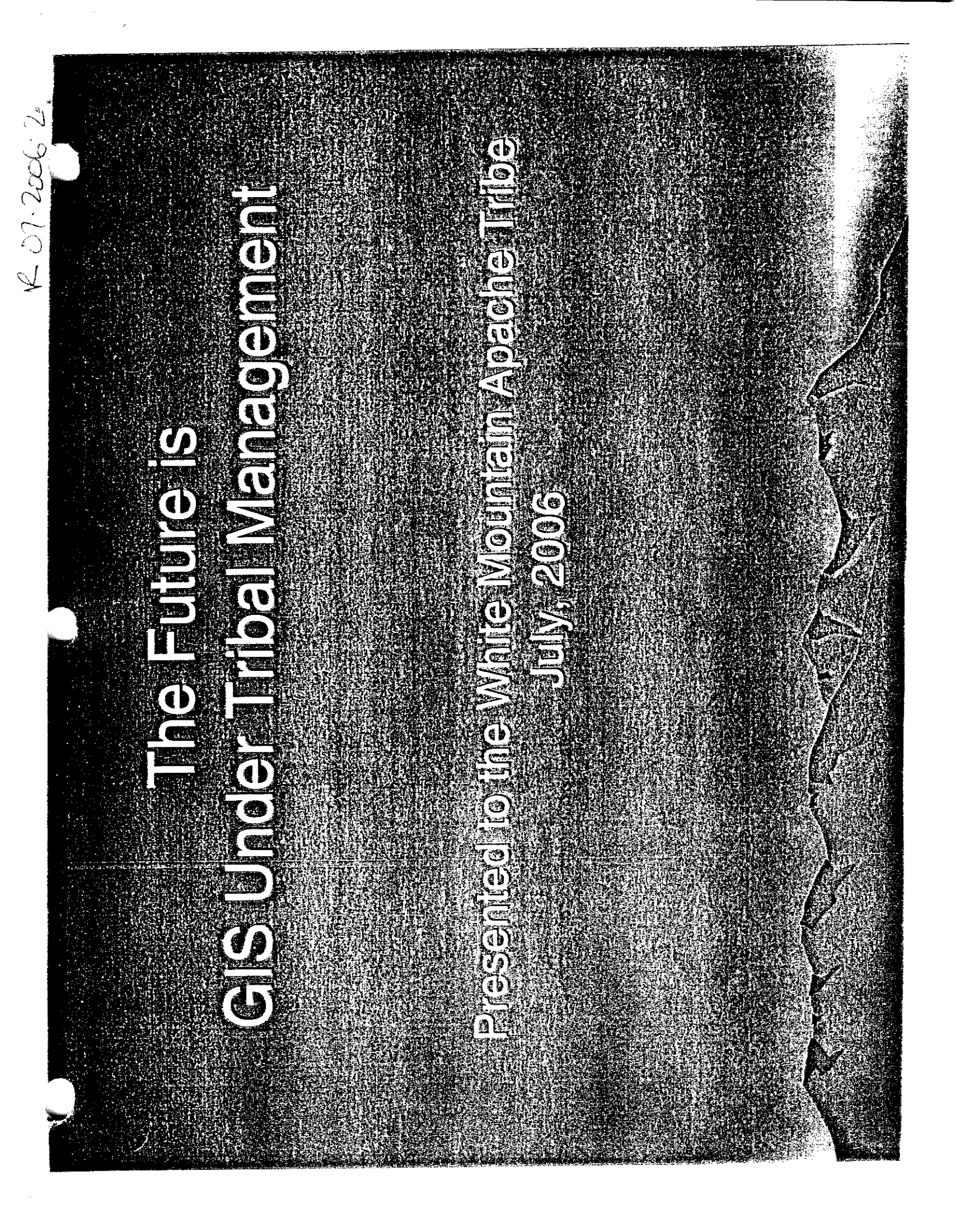


Secretary of the Tribal Council

R-07-2006-2

The Future is GIS Under Tribal Management

Presented to the White Mountain Apache Tribe
July, 2006



What is GIS?

- GIS is a computer-based technology that can store, organize, analyze, and display many geographically referenced resources and assets.
- GIS is a powerful tool that can help manage tribal resources and programs.
- GIS is presently used by nearly all city, county and state governments to help manage their assets and programs.

Goals

- Overview of GIS.
- Demonstrate the use of GIS (Geographic Information Systems) in the management of tribal functions and resources.
- Demonstrate the advantages and usefulness of a reservation-wide GIS.
- Explain benefits of PL-638 contracting.

- Geographic Information System -

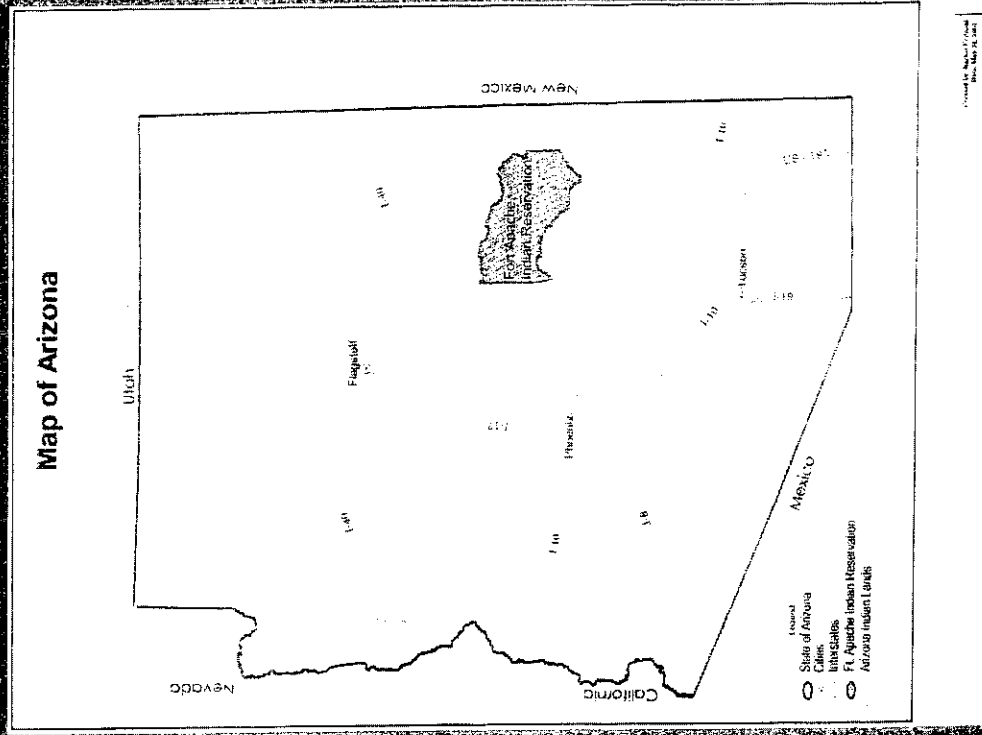
- Geographic = Where is it = place
- Information = What is it = data about place
- System = The computers & software & people that makes it all work

- All GIS information, particularly tribal sensitive data can be highly secured the same as other tribal sensitive computer data using the Tribal Computer Network.

GIS Use in Arizona

- All major cities
- Phoenix, Mesa, Tempe, Chandler, Flagstaff
- Navajo & other Counties
- Dept. of Interior, BIA, BLM, FWS, BOA

Show Low & Phnetop
starting to use GIS



Some Typical GIS Community Applications:

- Parcel / Assessment Management
- Water & Sewer Management
- Land Use Planning and Zoning
- Emergency Management Services
- Power Distribution Management
- Transportation Management & Planning
- Business Development-Demographics
- Natural Resource Management

Levels of GIS Use

Software

ArcGIS

ArcView

User Level

GIS Analyst,
Technicians,
Power-users

Advanced Users
& Managers

Tribal Managers,
Tribal Members

Data
Development,
Complex
analysis

Analyze data
Custom reports and
maps

Click to see data and maps

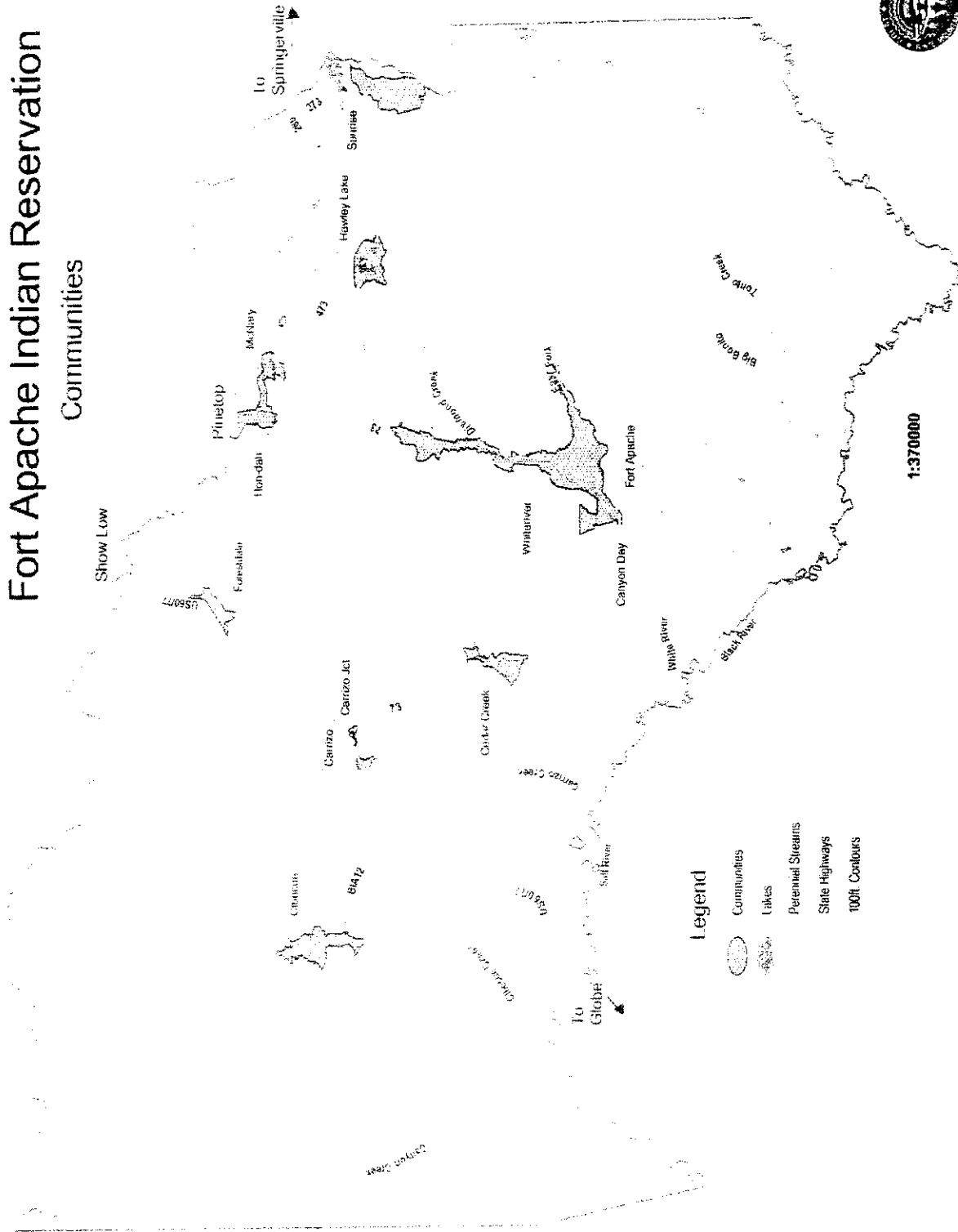
Arc Explorer
Web Browser



Communities

Fort Apache Indian Reservation

Communities



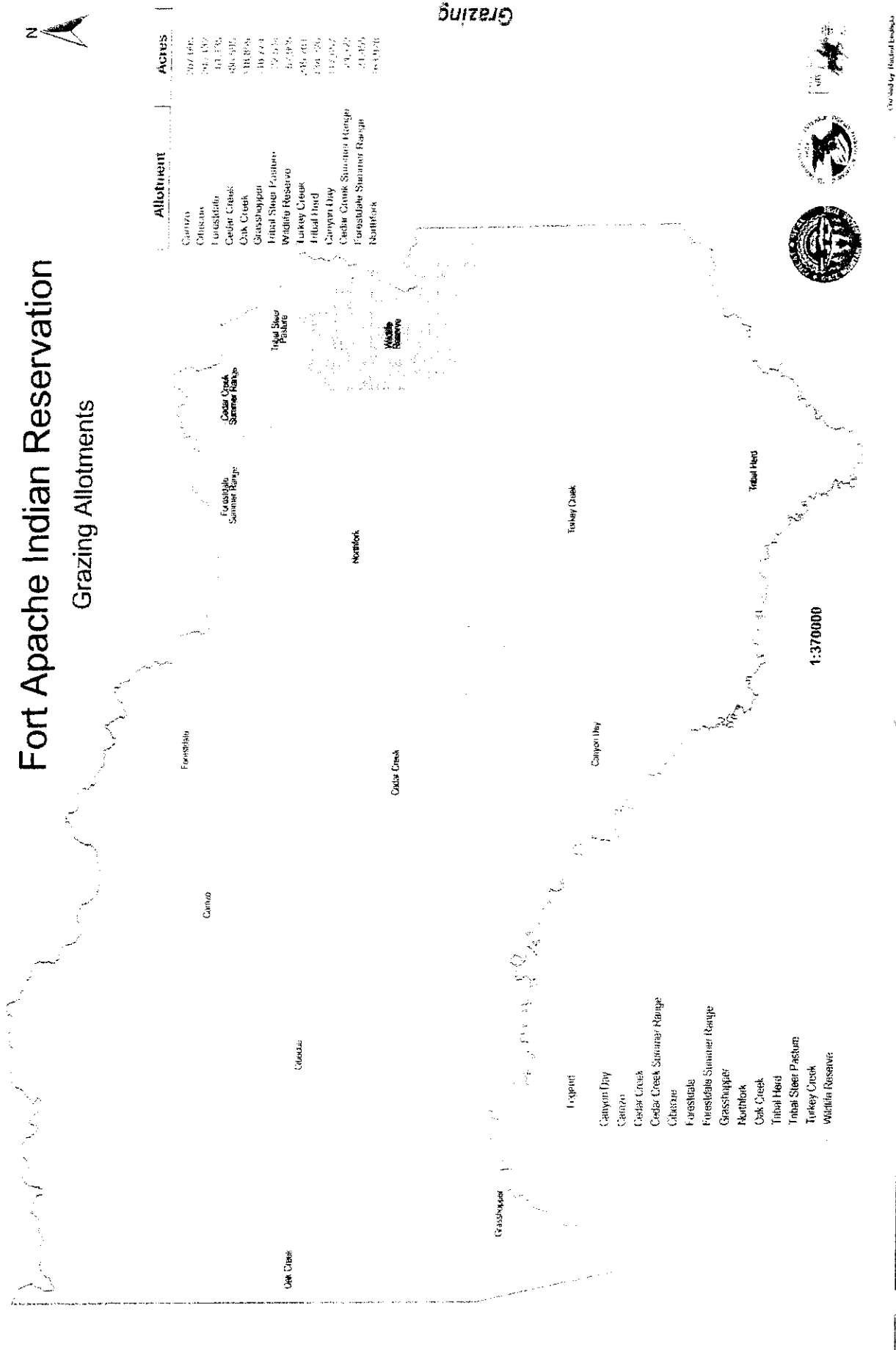
Reservation Communities



Created by: Mated Hirschfeld
Date: May 20, 2001

Grazing Allotments

Fort Apache Indian Reservation Grazing Allotments



Allotment	Acres
Canyon	397,000
Clifton	500,000
Forestland	100,000
Cedar Creek	400,000
Oak Creek	100,000
Grasshopper	100,000
Tribe Steer Pasture	100,000
Wildlife Reserve	100,000
Turkey Creek	100,000
Tribe Head	100,000
Canyon Day	100,000
Cedar Creek Summer Range	100,000
Forestland Summer Range	100,000
Northfork	100,000

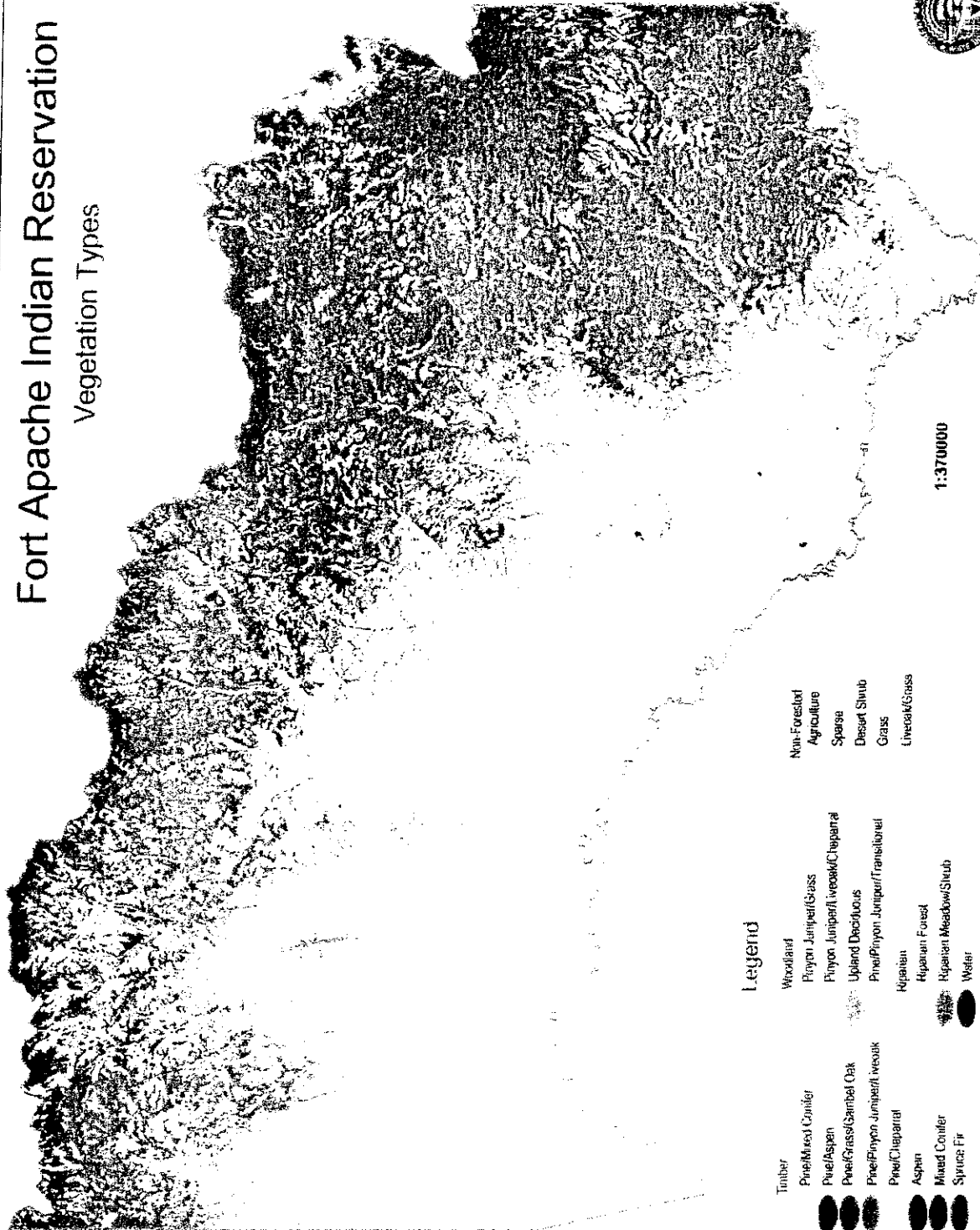
Grazing



Approved by Federal Land Policy
Date: March 10, 2000

Vegetation Types

Fort Apache Indian Reservation Vegetation Types



Category	Acres
Timber	758,064
Woodland	981,248
Non-Forest	11,117
Riparian Forest	16,032
Total	1,666,226

Vegetation

Legend

- Timber
- Pine/Mixed Conifer
- Pine/Aspen
- Pine/Grass/S Gambel Oak
- Pine/Pinyon Juniper/Aspen
- Pine/Chaparral
- Aspen
- Mixed Conifer
- Spruce Fir
- Woodland
- Pinyon Juniper/Grass
- Pinyon Juniper/Liveoak/Chaparral
- Upland Deciduous
- Pine/Pinyon Juniper/Transitional
- Riparian
- Riparian Forest
- Riparian Meadow/Slrub
- Water
- Non-Forest/
- Agriculture
- Shrub
- Desert Shrub
- Grass
- Liveoak/Grass

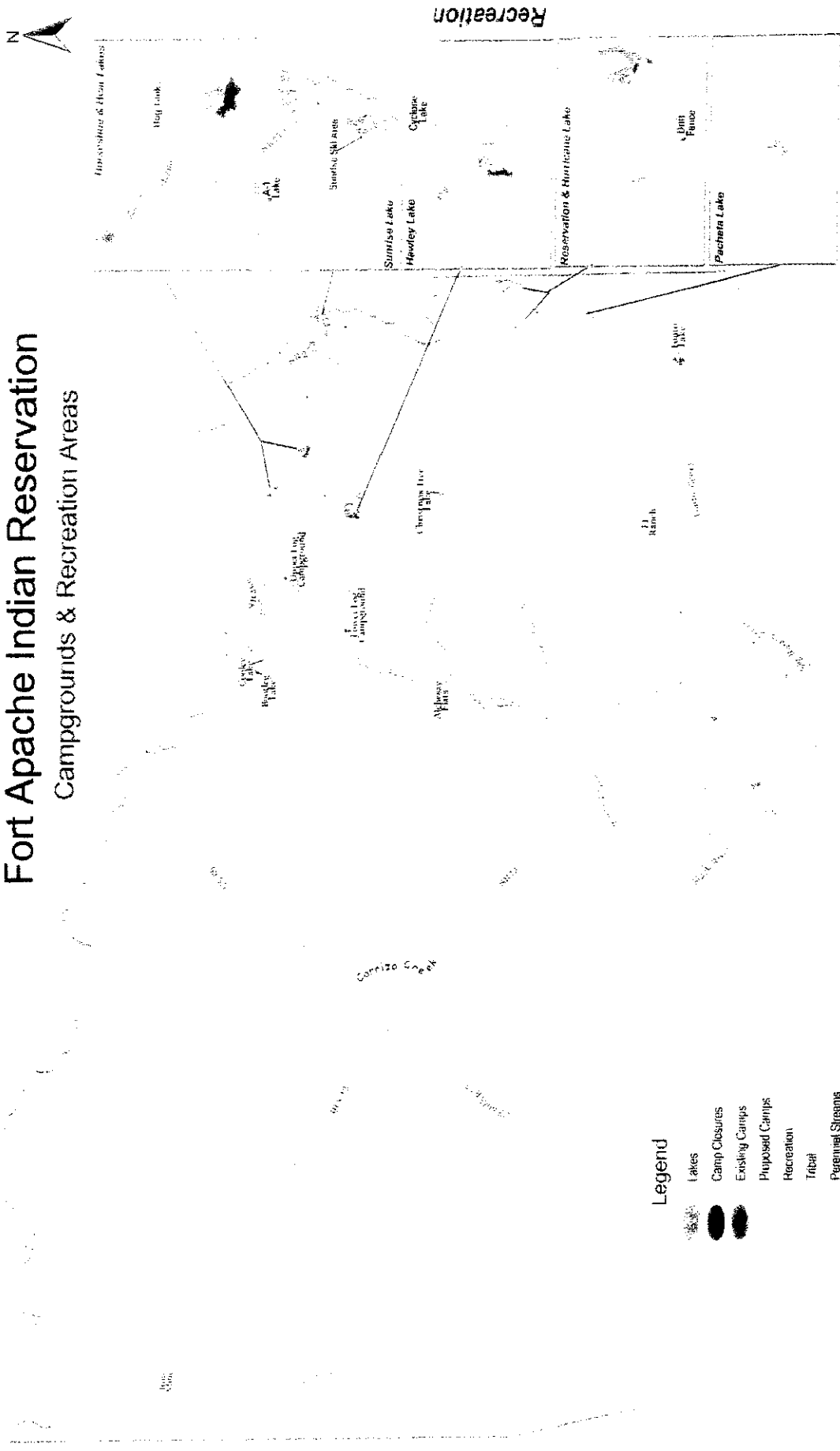
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Created by: Heidi Erickson
Date: May 22, 2001

Recreation

Fort Apache Indian Reservation Campgrounds & Recreation Areas



Legend

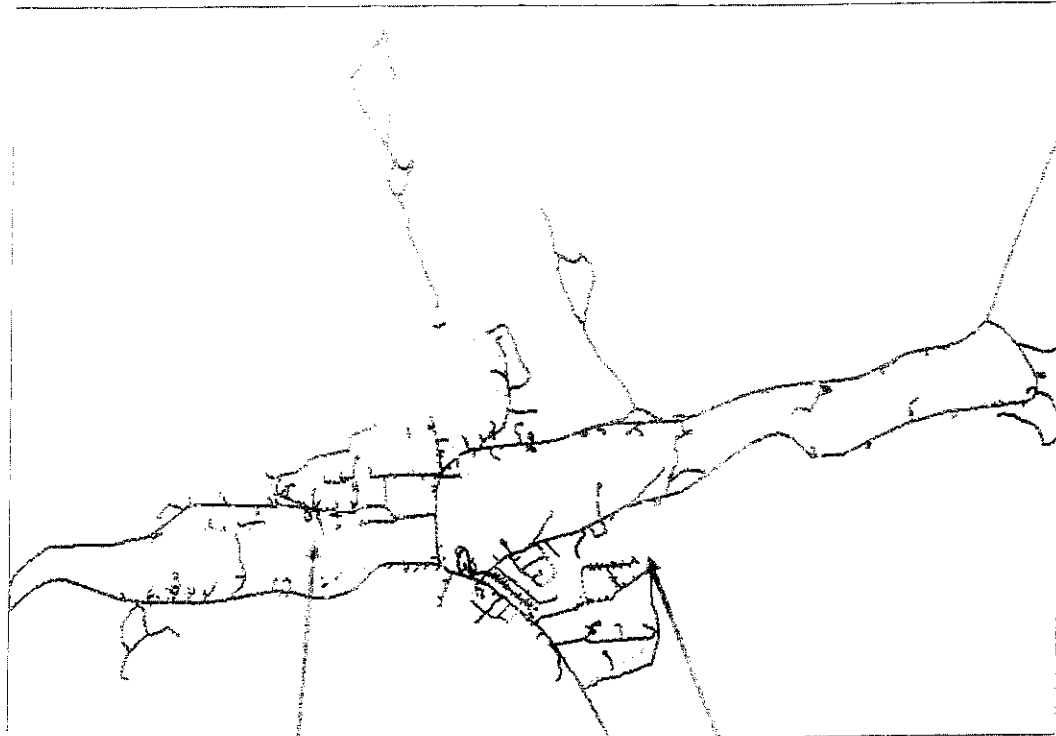
- Lakes
- Camp Closures
- Existing Camps
- Proposed Camps
- Recreation
- Tribal
- Perennial Streams
- 100ft Contours
- Highways

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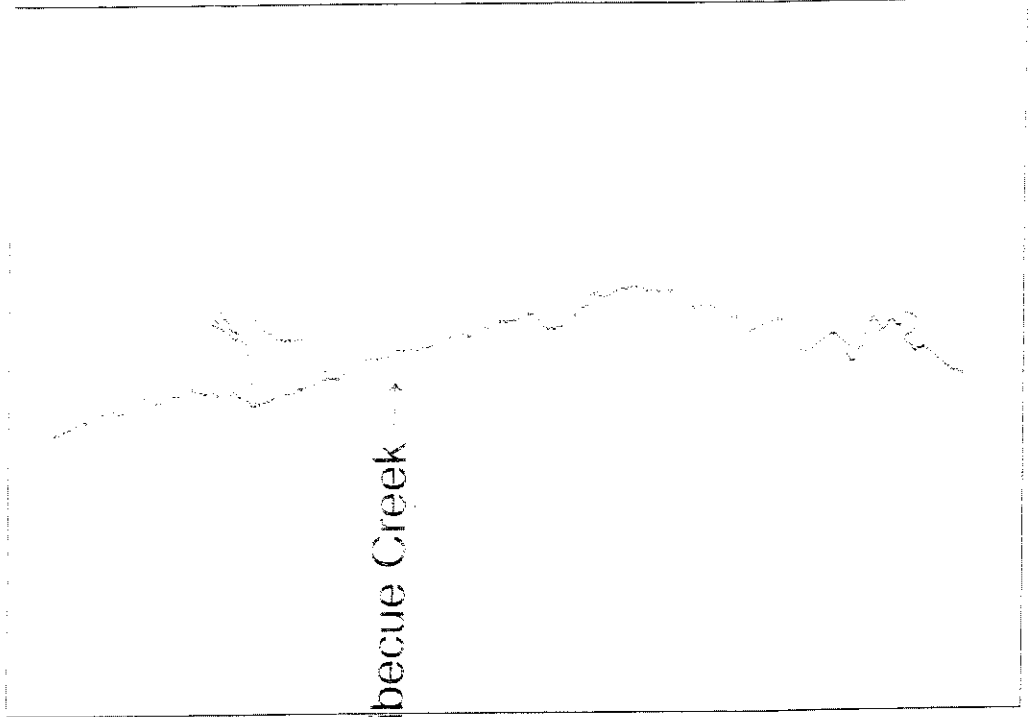


Created by: Richard L. ...
Date: March 19, 2004

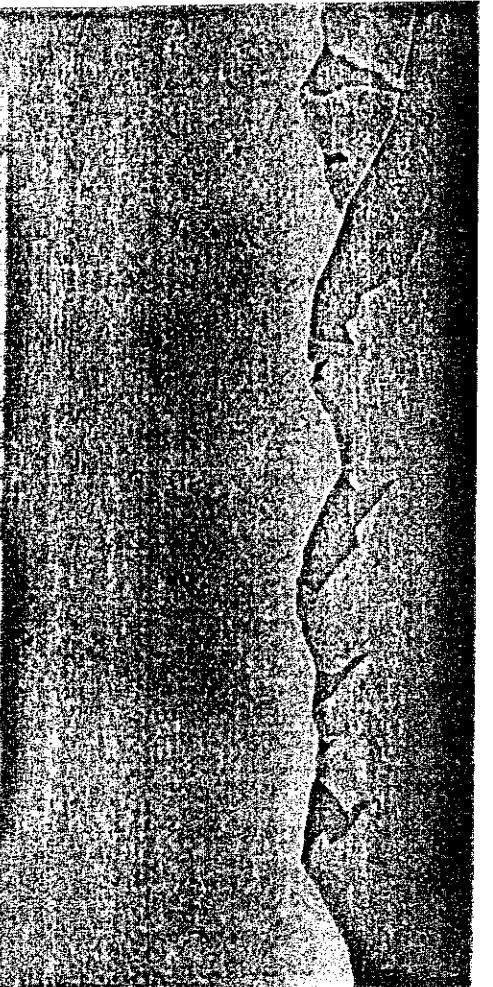
Roads



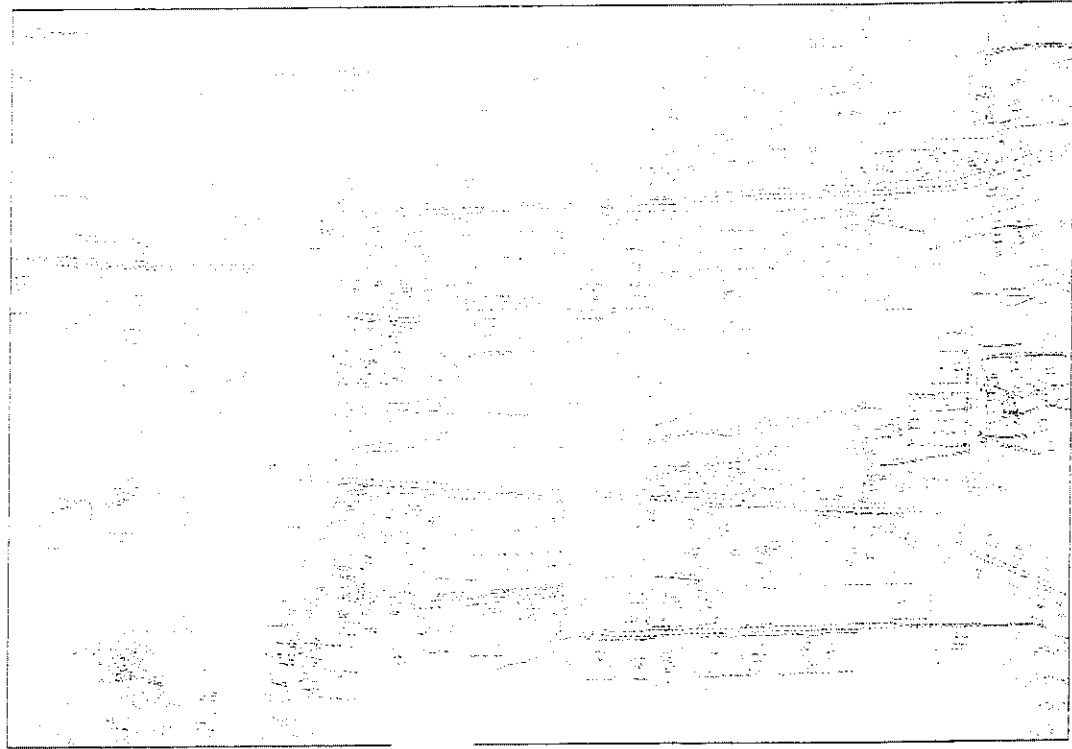
Streams



Cibecue Creek →

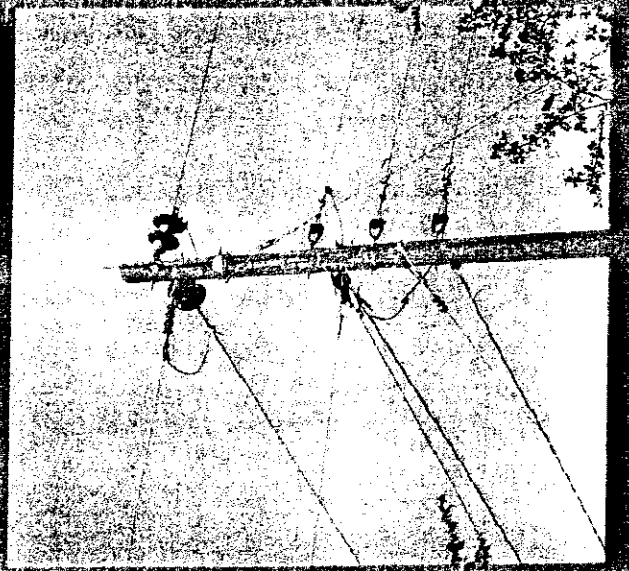
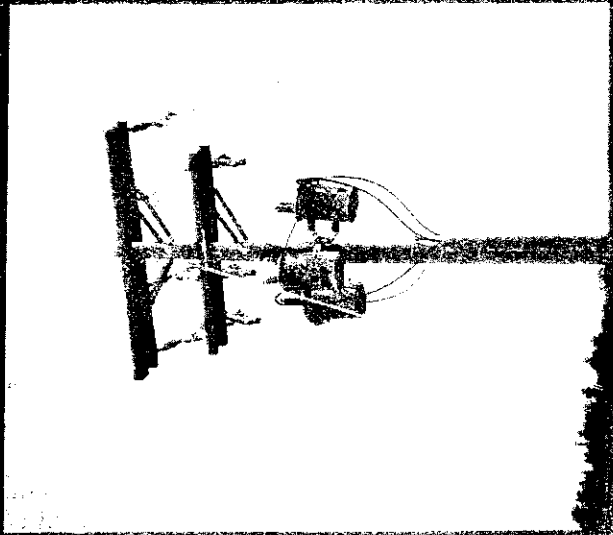
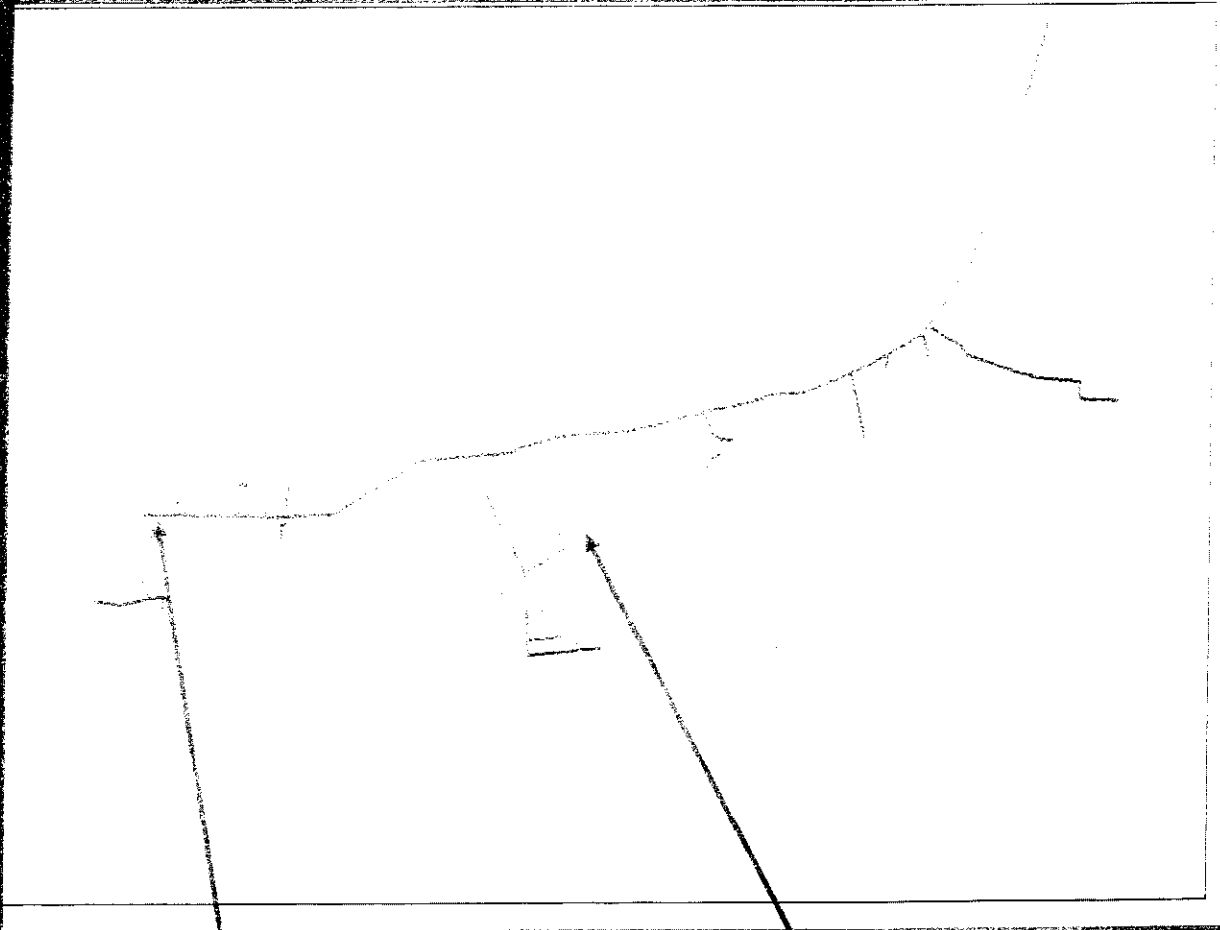


Domestic Water System



Canyon Day water system →

Power Lines

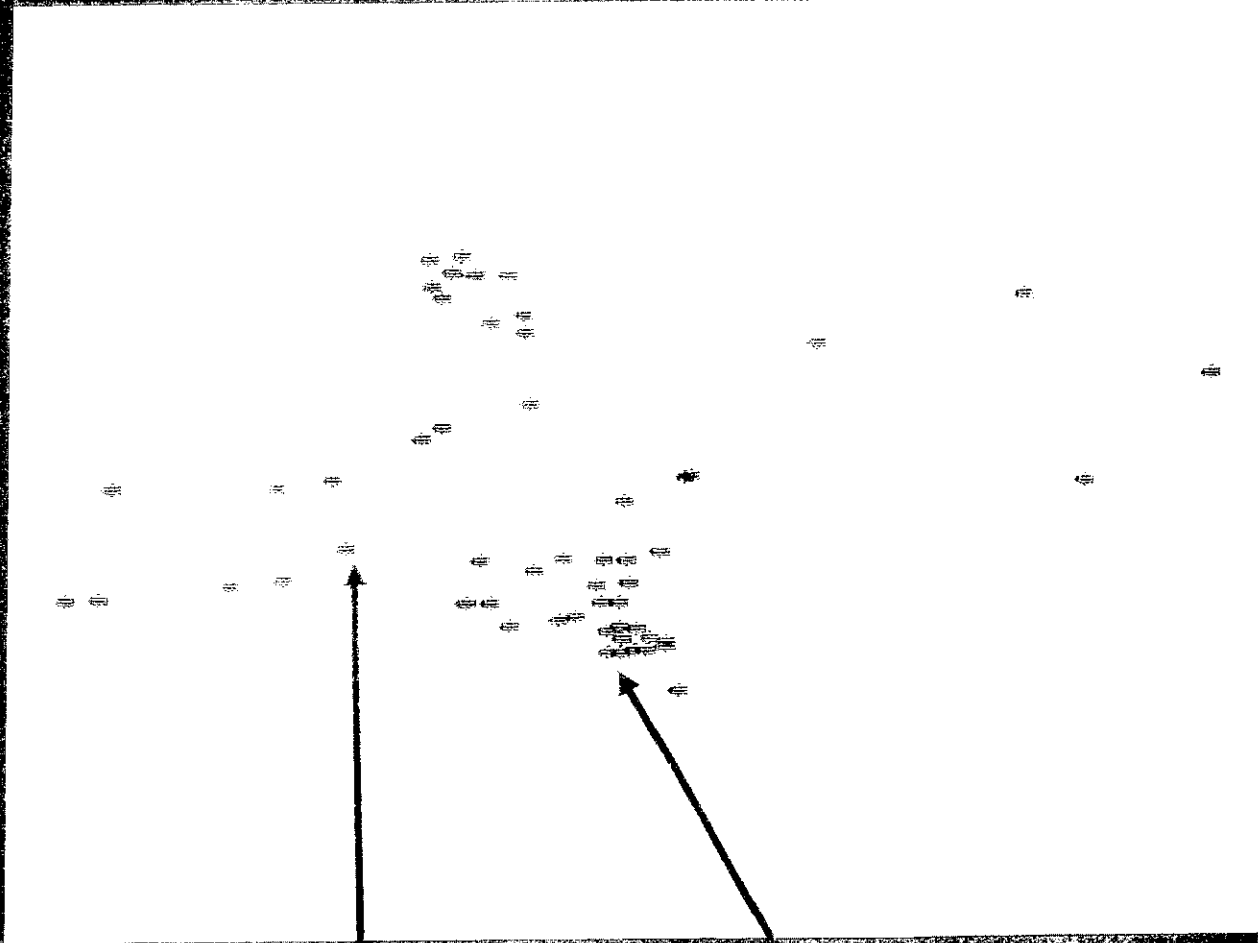
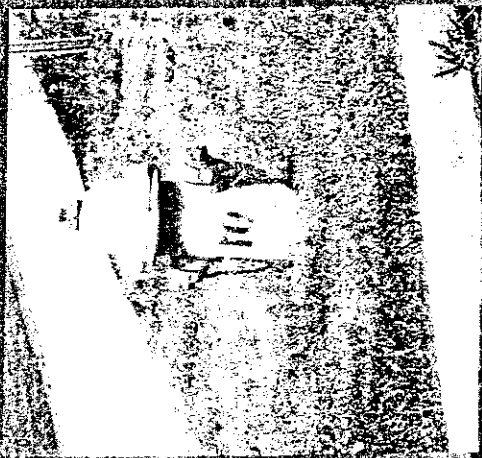
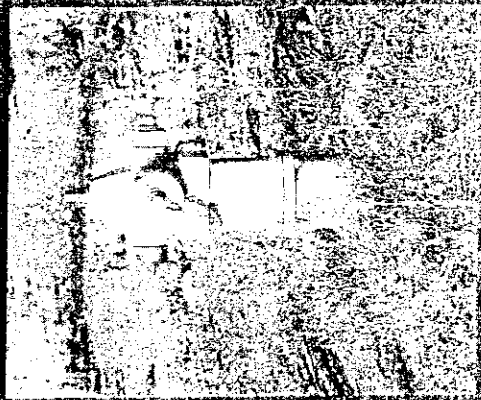


Irrigation Ditches

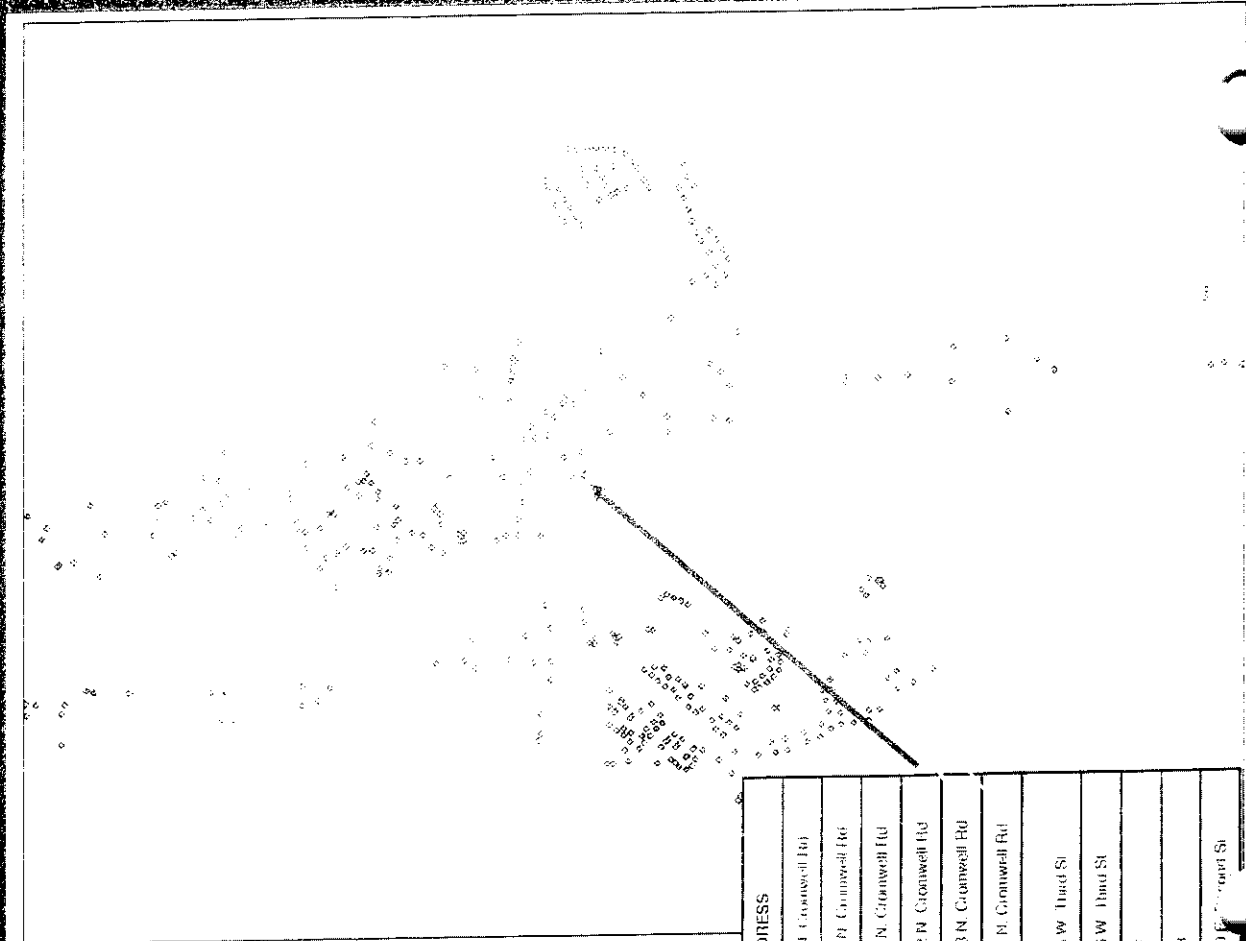
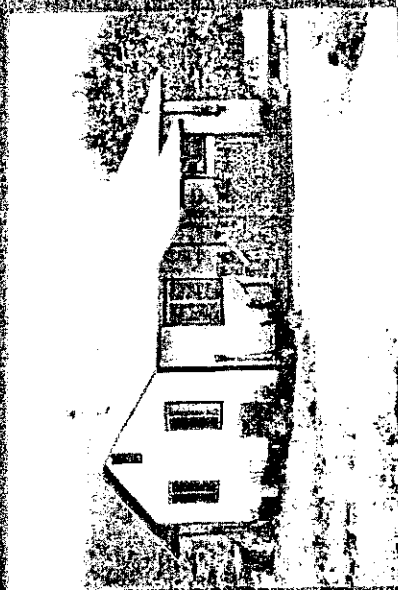
Farmland
Ditch



Fire Hydrants

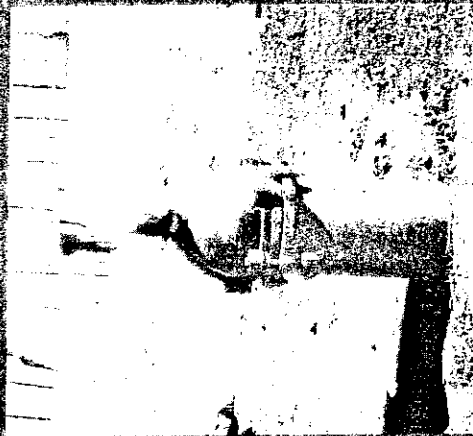


Houses



COMMUNITY	OCCUPANT	STRUC. TYPE	STRUC. JUR.	ADDRESS
101 Star Center Eastport		Individual	Whol	9911 Cromwell Rd
100 Star Eastport		Individual	Whol	100 N. Cromwell Rd
101 Seabury	Condo	Residence	Individual	101 N. Cromwell Rd
102 Seabury	Electric	Residence	Individual	102 N. Cromwell Rd
103 Seabury	Electric	Residence	Individual	103 N. Cromwell Rd
104 Seabury	Electric	Residence	Individual	104 N. Cromwell Rd
105 Seabury	Electric	Residence	Individual	105 W. Third St
106 Seabury	Electric	Residence	Individual	106 W. Third St
107 Seabury	Electric	Residence	Individual	107
108 Seabury	Electric	Residence	Individual	108
109 Seabury	Electric	Residence	Individual	109 E. Second St

Water Wells



Well 10

Well 9

Well 8

Well 7

Well 6

Well 1 (BWS)

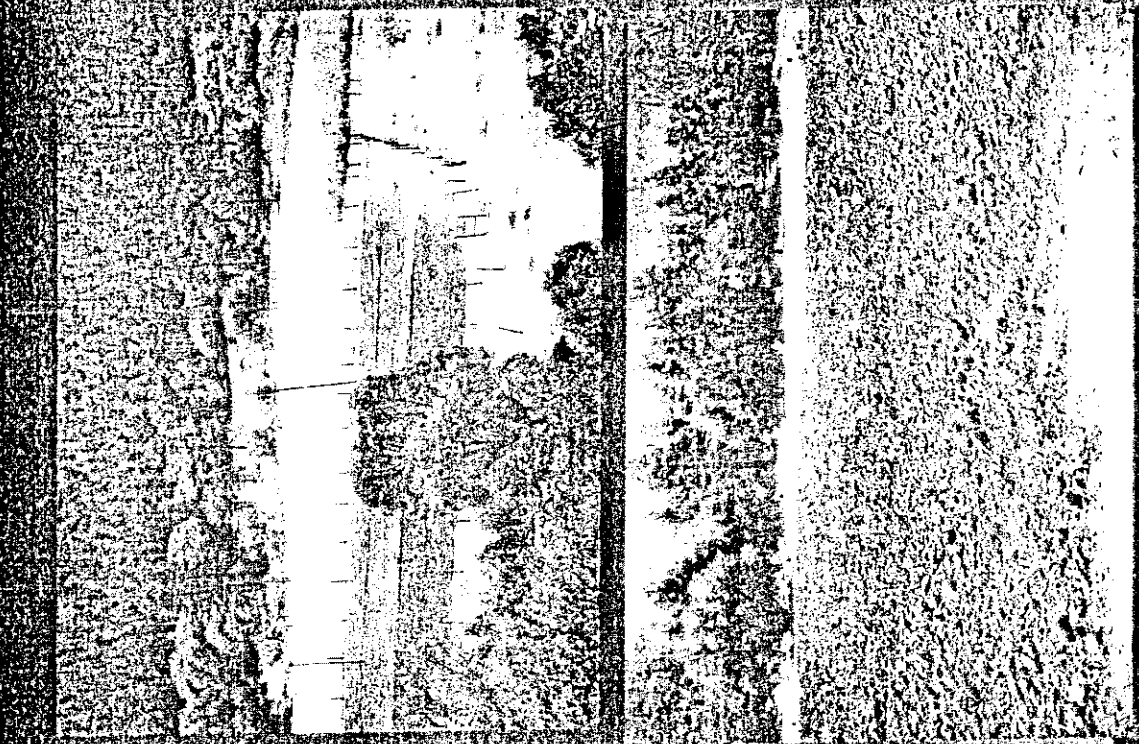
MF5

Job 2 (BWS)

MF4 (BWS) MF3 (BWS)

ID	PWS	WELL SYSTL	WELL NAME	STA TUS	DEPT H FT	CASI NG	SCREENITE	YIELD GPM
01	90000 081	WINDMILLIA COPPER	Flow Well 1	active 6	107	8" steel	below water	
02	90000 081	WINDMILLIA COPPER	Flow Well 2	active 6	70	8" steel	Screen 40 60"	
03	90000 082	WINDMILLIA COPPER	Well 1	active 6	60	8"		205
04	90000 083	WINDMILLIA ALUMINUM	Well 1	active 7	60	6	Slotted 20 40	235

Farm Plots



Farms & Floodplain

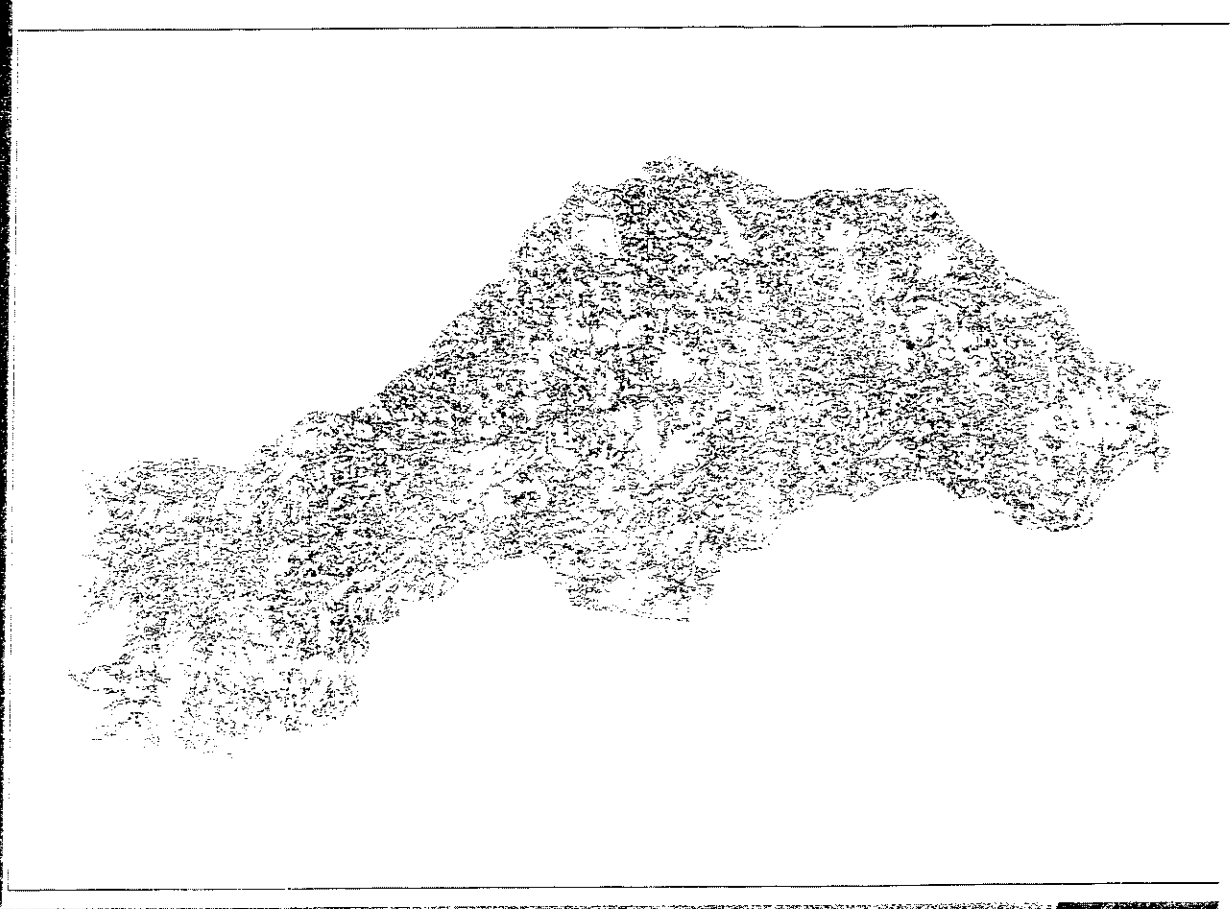


Subdivisions

German Town →

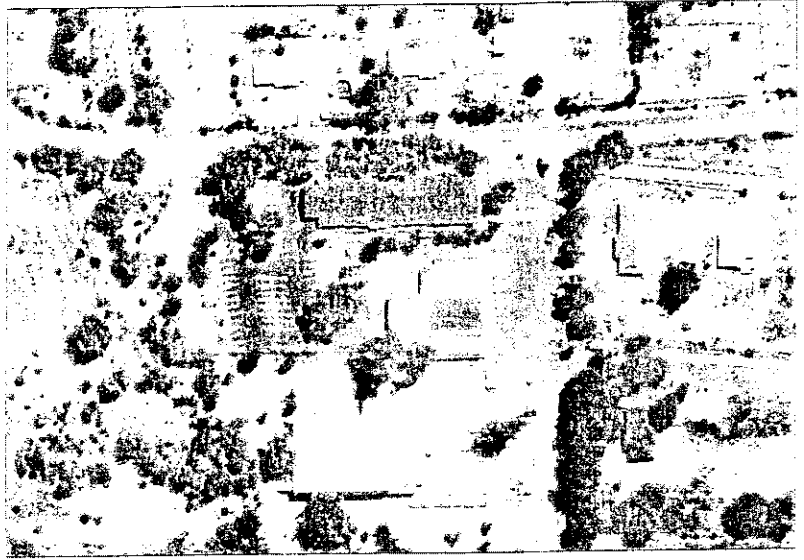
Cibecue Community →

Vegetation Type

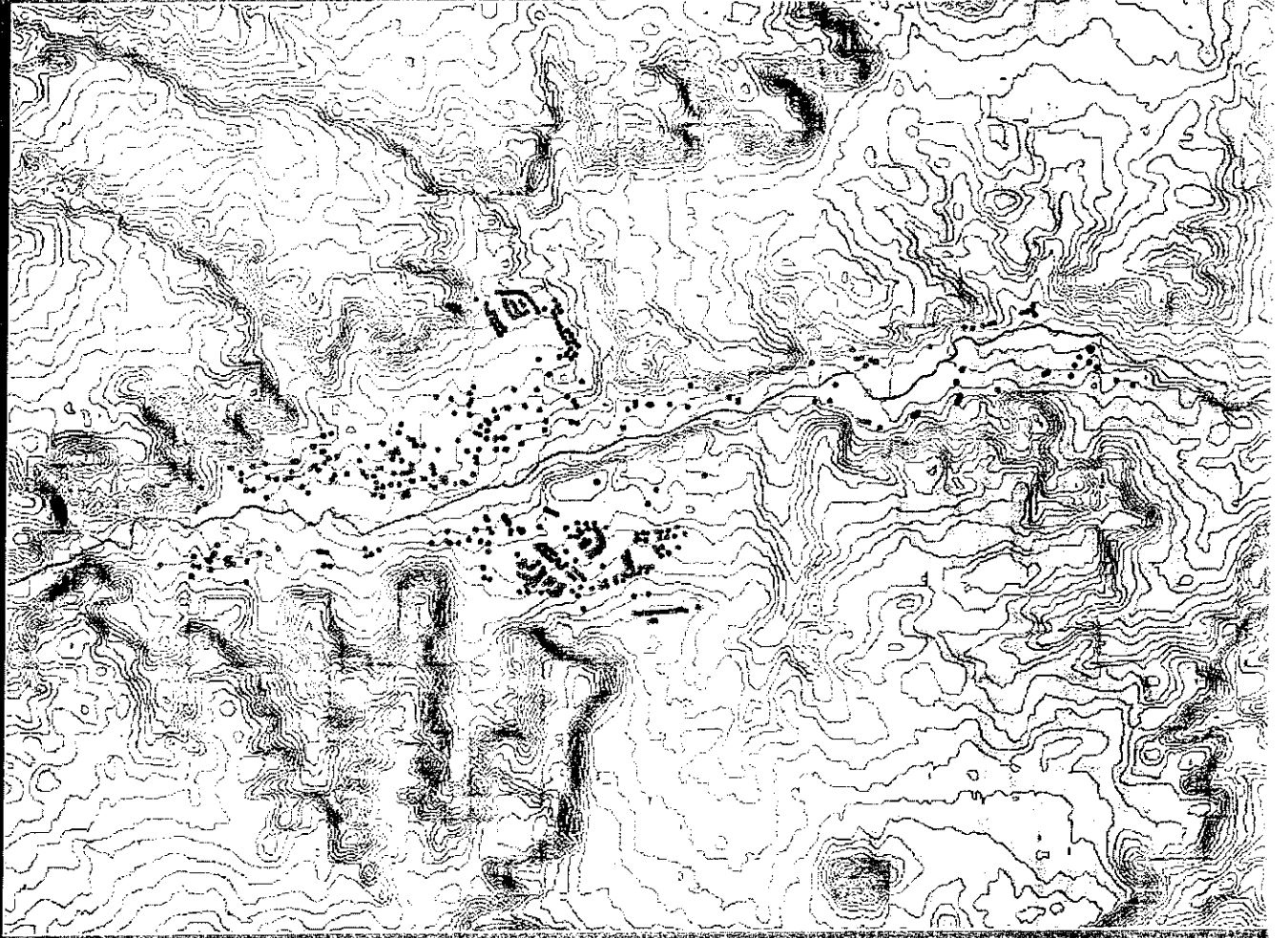


Digital Imagery

- Imagery, Digital Imagery
(40cm pixel true color)



Elevation Contours



Shaded Relief Map



Perspective Imagery

Sunrise Ski Area



GIS Products

- Cartographic (paper and digital maps of numerous features, images & tables)
- Reports from data queries and from analysis results.
- Systems such as Fire Dispatch and "911" systems
- Map Serving from a network / Intranet server.

Applications: How can GIS be used ?

- Natural Resource Management-Land Operations
 - Livestock Association boundaries, fences
 - Forest management, timber sale development, planning
 - Fire Management, Well & Thinning, Dispatch, Suppression support
 - Range & Wildlife management (T&E, grazing, Apache Trout)
- Emergency Services / Police
 - Fire Department 911 Dispatch / routing
 - Police Department 911 Dispatch / routing
 - Fire behavior attributing (structure type, hydrant proximity)
 - Hazmat location and attributes
 - Criminal behavior / analysis / mapping

Applications, Cont.

- Transportation Mgmt.
 - Planning and design
 - Inventory and surface maintenance
- Land Use Planning
 - "Zoning" analysis
 - Residential and commercial siting & development
 - Land Assignments
 - Utility development
- Homeland Security
 - Use GIS data for risk analysis
 - Mapping and incident management, evacuation planning, etc.
- Agriculture
 - Farm Assignments planning and inventory
 - Irrigation management
 - Data for Grants / Water Rights

Applications, Cont.

- Facility Management
 - Domestic water service
 - Sewer management
 - Electric services
 - Waste Management
- Hydrology
 - Wetland spring inventory/management
 - Aquifer & ground water analysis
 - Water Rights data & analysis
 - Stream inventory & analysis
 - Dam management risk analysis
- Demographics
 - Tribal Housing Authority / Land Office database
 - Epidemiology (IHS programs)
 - Grants & Subsidy data development
 - School bus routing
- Historic Preservation and Cultural Resources
 - Inventory site location and information
 - Map and Manage Cultural & Historic Sites

Use GIS to Answer Questions:

- Where are residences & businesses and their addresses?
- Where are roads and what types?
- Acres of Farmland? Where are the irrigation ditches?
- Where are the fire hydrants? Manholes? Water valves?
- What are the fastest routes for emergency services and most efficient school bus routes?
- Where are the best new places for housing or commercial development based on available water, sewer, roads and services? Where are the most suitable locations?
- Where are houses within 500' of river/floodplain

Knowledge is Power

- The more information one has, the more questions can be answered.
- A centralized reservation GIS allows viewing many aspects of a problem, and offers many types of solutions.
- Maps are able to show people information better than other means.
- Converting existing information to GIS data can answer much wider questions. GIS can answer questions other methods can not.

What Next?

PL-638 Contract the BIA GIS Function ?

- Reasons TO Contract GIS:
 - Present B.I.A. GIS organization does not serve the Tribe well. Is disorganized and BIA-project driven.
 - B.I.A. intends to furlough GIS positions, reducing year round services to Tribes.
 - Consolidate all GIS functions, data, and staff into one central organization and location to serve all clients.
 - Ability to provide GIS data & services to all tribal departments using the tribal computer network.
 - Protect & Control tribal proprietary/sensitive GIS data.
 - Create the potential for a Tribal Enterprise \$\$ Use the GIS organization as a pay for services organization, both on and off the reservation.

PL-638 the GIS Function ?

- Why Not Contract?

- Potential time lag on services while establishing the new organization.
- Potential risk of federal funding cuts.
- Potential delays in recruiting and training new Tribal GIS technicians.

The potential benefits outweigh the risks:

Conclusion: Contract the GIS Function

Example Tribal GIS Organization

- GIS Manager / Analyst (Ms. Endfield)
 - GIS Specialist (recruit from within tribe)
 - GIS Technician (recruit intern from within WMAT)
 - GIS/GPS Technician (recruit intern from within.)
 - GIS Technician (Ms. Walker, WMAT Forestry)

Existing Physical Resources to Contract:

- Trimble Navigation Pathfinder XPRS (2ea) w/rtf/software
- GPS Base Station tower/antenna, software
- Dell PowerEdge 7700 server
- StorageTek SCSI HD array
- Promise Technology HB array
- HP Netstack 24 port gigabit switch
- Misc. hubs, switches and network cables
- APC 2000 vac UPS
- HP 815mp scanner/plotter (includes 8000ps plotter)
- HP 7550m plotter
- HP 1060m plotter
- HP 120m plotter
- HP 8500 color laser printer
- HP 4600 laser printer
- HP 1000 inkjet printer
- HP 4650 laser printer
- Dell Precision Workstation 670 (2)
- Dell Precision Workstation 650 (2)
- Dell Precision Workstation 530 (2)
- Dell Precision Workstation M50
- IBM 31p Notebook PC
- IBM T22 Notebook PC
- HP Scanner USB scanner
- Epson 840 label/cassette printer
- DOJ EPA ESH GIS software licenses and hardware keys (10 ea)
- Misc. Adobe graphic software
- Misc. GPS units, cables, plotter paper & ink cartridge stores, etc.

Approximate Replacement

Value = \$160,000

Recommendations to Tribe: Contract GIS

- Use Cost-effective WMAT GIS Staff.
- Use WMAT Computer Network
- Keep GIS Autonomous For Best Service.
- Develop Supplemental Tribal Funding Or Use Pay For Services.
- Create A WMAT GIS Steering Committee.
- Develop A GIS Training Program
- Create A GIS Newsletter To Inform People.

Questions ?