



China Historical GIS System Demonstration

Merrick Lex Berman

Lamont Forum, Harvard, Aug 2001

GIS Layers

long_coor	lati_coor	pl	place_present	dyn_ch	prov	level2_py_name	level2_ch
111.316	35.552		山西曲沃县西南隘口	清朝	山西	Pingyang Fu	平阳府
113.073	36.333		山西潞城市西安昌	清朝	山西	Lu'an Fu	潞安府
112.693	40.154		山西左云县北宁鲁堡	清朝	山西	Shuoping Fu	朔平府
112.956	39.702		山西大同市西南安宿疃	清朝	山西	Datong Fu	大同府
111.042	35.062		山西运城市东北安邑	清朝	山西	Jiezhou Zhilizhou	解州直隶州
111.239	34.88		山西平陆县北八政	清朝	山西	Jiezhou Zhilizhou	解州直隶州
112.884	35.618		山西晋城市东北巴公	清朝	山西	Zezhou Fu	泽州府
111.692	37.142		山西孝义市西壁关	清朝	山西	Fenzhou Fu	汾州府
113.818	40.287		山西阳高县南大白登	清朝	山西	Datong Fu	大同府
112.032	39.803		山西平鲁县西北败马堡	清朝	山西	Shuoping Fu	朔平府
112.702	38.109		山西阳曲县东北柏井	清朝	山西	Taiyuan Fu	太原府
113.81	37.821		山西平定县东柏井	清朝	山西	Pingding Zhilizhou	平定直隶州
111.583	34.905		山西平陆县东南沟夹河与白	清朝	山西	Jiezhou Zhilizhou	解州直隶州
112.454	35.408		山西阳城县东南白桑	清朝	山西	Zezhou Fu	泽州府
111.016	37.489		山西离石市西上白霜	清朝	山西	Fenzhou Fu	汾州府
111.895	40.845		内蒙古呼和浩特市东白塔	清朝	山西	Guisuiliuting	归绥六厅
111.118	38.179		山西临县东北白文	清朝	山西	Fenzhou Fu	汾州府
114.077	40.477		山西天镇县北白杨口	清朝	山西	Datong Fu	大同府
112.131	36.559		山西沁源县西北柏子	清朝	山西	Qinzhou Zhilizhou	沁州直隶州
111.896	39.213		神池县县西北八角	清朝	山西	Ningwu Fu	宁武府
112.047	38.631		山西宁武县南坝门口	清朝	山西	Ningwu Fu	宁武府
112.891	40.227		山西左云县东北保安堡	清朝	山西	Shuoping Fu	朔平府
111.079	39.012		山西保德县	清朝	山西	Baode Zhilizhou	保德直隶州
110.016	40.592		内蒙古包头市东	清朝	山西	Guisuiliuting	归绥六厅

Sample CHGIS data

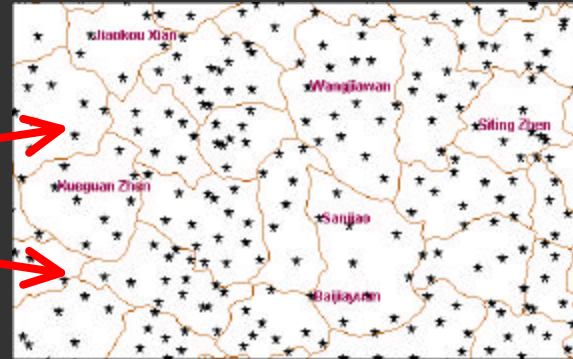


Tan Qixiang's "Historical Atlas of China"

New administrative unit datasets

long_coor	lati_coor	place_name	dyn_ch	name	level2_py_name	level2_ch
111.516	39.990	山西临汾县西南临汾口	清朝	Shanxi	Fengcheng Pu	平遥府
113.073	35.333	山西临汾县西南临汾口	清朝	Shanxi	Lu'su Pu	临汾府
112.690	40.184	山西平遥县北平遥堡	清朝	Shanxi	Shuoping Pu	清平府
112.066	36.702	山西大同市西南文保堡	清朝	Shanxi	Datong Pu	大同府
111.042	35.060	山西临汾县平遥临汾口	清朝	Shanxi	Jiexian Zhilishou	解州直隶州
111.256	36.485	山西平遥县北平遥堡	清朝	Shanxi	Jiexian Zhilishou	解州直隶州
112.084	36.618	山西临汾县平遥临汾口	清朝	Shanxi	Fezhen Pu	泽州府
111.692	37.142	山西临汾县平遥临汾口	清朝	Shanxi	Fezhen Pu	泽州府
113.838	40.287	山西平遥县北平遥堡	清朝	Shanxi	Datong Pu	大同府
112.002	39.803	山西平遥县北平遥堡	清朝	Shanxi	Shuoping Pu	清平府
112.702	38.109	山西平遥县北平遥堡	清朝	Shanxi	Taiyuan Pu	太原府
113.81	37.021	山西平遥县北平遥堡	清朝	Shanxi	Fengcheng Pu	平遥府
111.062	35.005	山西平遥县西南临汾口	清朝	Shanxi	Jiexian Zhilishou	解州直隶州
112.454	35.406	山西平遥县西南临汾口	清朝	Shanxi	Fezhen Pu	泽州府
111.016	37.489	山西平遥县西南临汾口	清朝	Shanxi	Fezhen Pu	泽州府
111.896	40.945	山西平遥县西南临汾口	清朝	Shanxi	Guanliuotang	归化州
111.118	36.179	山西平遥县西南临汾口	清朝	Shanxi	Fezhen Pu	泽州府
114.077	40.477	山西平遥县西南临汾口	清朝	Shanxi	Datong Pu	大同府
112.121	35.989	山西平遥县西南临汾口	清朝	Shanxi	Guozhou Zhilishou	归州直隶州
111.696	36.213	山西平遥县西南临汾口	清朝	Shanxi	Hongya Pu	平遥府
112.047	38.631	山西平遥县西南临汾口	清朝	Shanxi	Hongya Pu	平遥府
112.691	40.227	山西平遥县西南临汾口	清朝	Shanxi	Shuoping Pu	清平府
111.019	35.012	山西平遥县西南临汾口	清朝	Shanxi	Beize Zhilishou	保德直隶州
110.016	40.962	山西平遥县西南临汾口	清朝	Shanxi	Guanliuotang	归化州

Settlements as points



Map sources

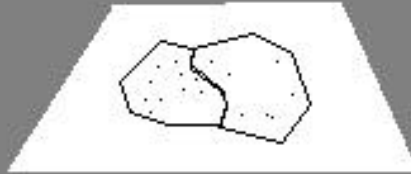


Boundary polygons



CHGIS base dataset layers

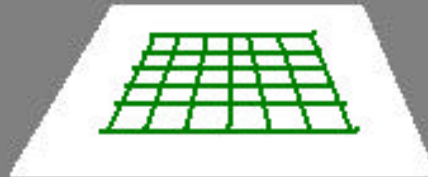
CHGIS layers



hydro layers

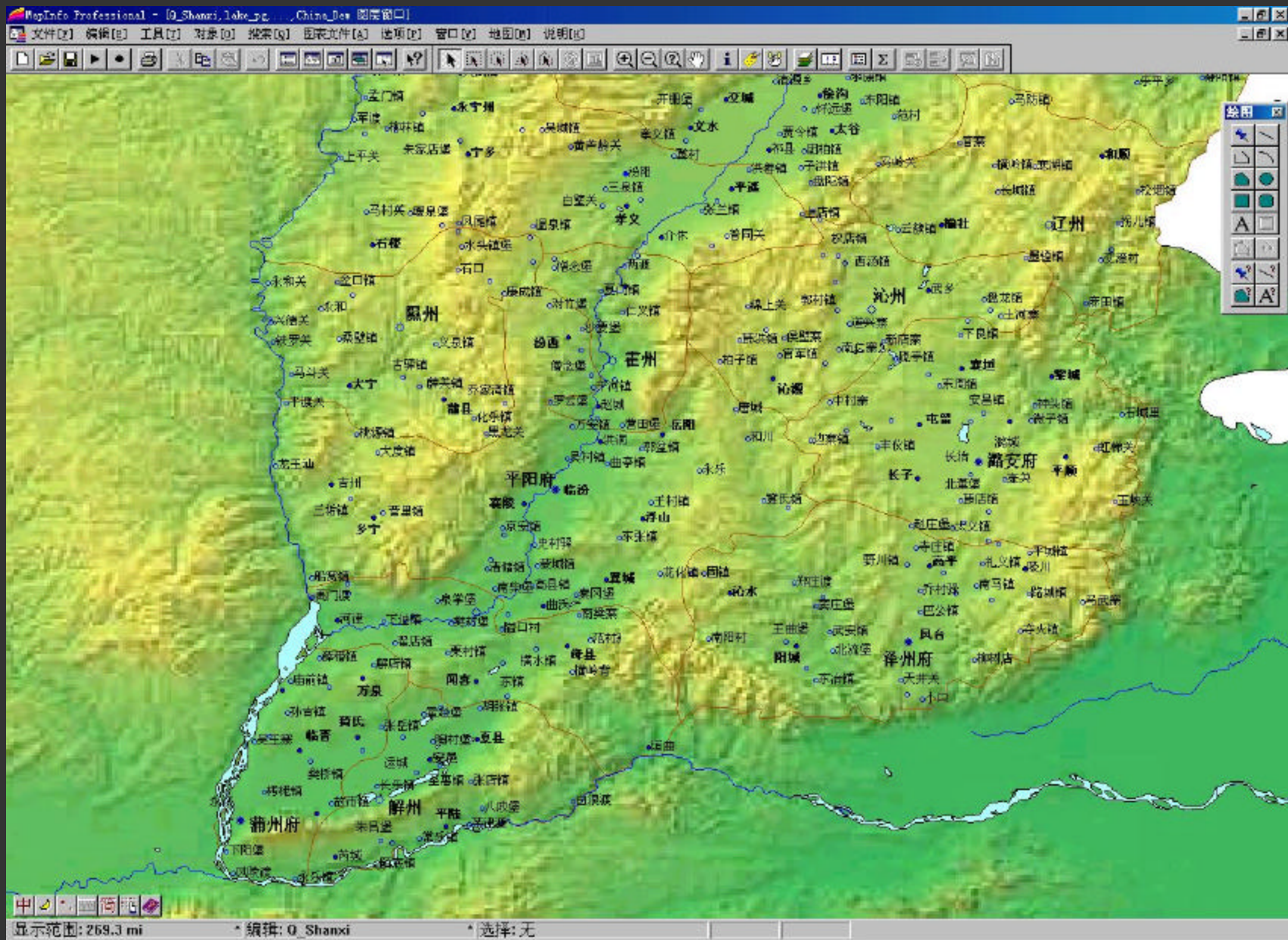


DEM layers



**O
V
E
R
L
A
Y**

Using CHGIS spatial data with other GIS data



CHGIS data with hydro & DEM overlays

Toponym Search

<i>pinyin</i>	<i>admin_type</i>	<i>sup_prov</i>	<i>province</i>	<i>circuit</i>	<i>prefect</i>	<i>dep_pref</i>
Xincheng	Xian	Ming dynasty	Jingshi		Baoding	
Xincheng	Xian	Ming dynasty	Shandong		Ji'nan	
Xincheng	Xian	Ming dynasty	Zhejiang		Hangzhou	
Xincheng	Xian	Ming dynasty	Jiangxi		Jianchang	
Xincheng	Xian	Ming dynasty	Guangxi		Qingyuan	
Xincheng	Suo	Ming dynasty	Guizhou			Annanwei
Xincheng	Wei	Ming dynasty	Jingshi			Beiping
<i>Code</i>		<i>Level1_h</i>	<i>Level2_h</i>	<i>Level3_h</i>	<i>Level4_h</i>	<i>Level5_h</i>
M001100220025		0	11	0	22	0
M002500210026		0	25	0	21	0
M004100210027		0	41	0	21	0
M004500260022		0	45	0	26	0
M008500230032		0	85	0	23	0
M009500003722		0	95	0	0	37
M001100002422		0	11	0	0	24

Coding to distinguish unique places

Toponym Data Model

Administrative Feature Table

Key_id	Pinyin_Name	Name_HZ	Alt_Name
1234	Minyong	民永	Y
1235	Longjing	龍井	Y

Alternate Language Table

Lang_id	Alt_Lang
1	manchu_1
2	mongol_1
3	tibet_1

Alternate Name Table

Key_id	Alt_Name	Alt_HZ	Lang_id
1234	min'gyun		3
1234	Menyong	門永	
1234	Minyong	岷永	
1234	Tuanjie	團結	
1235	Baoding	保定	
1235	drong'pa		3

tibet_1 Table

Key_id	Tibetan_Name
1234	min'gyun
1235	drong'pa

CHGIS - fas.harvard.edu/~chgis

03-01-01

Online Toponym Search Engine Model

Map Data: ACASIAN
Map Design: Lex Berman

0 500 1,000
miles

Hebei
Shanxi
Shaanxi
Ningxia
Xinjiang
Gansu
Qinghai
Xizang (Tibet)
Sichuan
Yunnan
Guizhou
Hainan
Heilongjiang
Jilin
Neimenggu
Liaoning
Beijing
Tianjin
Shandong
Jiangsu
Shanghai
Anhui
Zhejiang
Jiangxi
Fujian
Taiwan
Guangxi
Hunan
Hubei
Henan
Guangdong
Hong Kong

Placename (Pinyin):

or Province:

Or Guobiao Code:

[Search Tips](#)

Search Engine Form

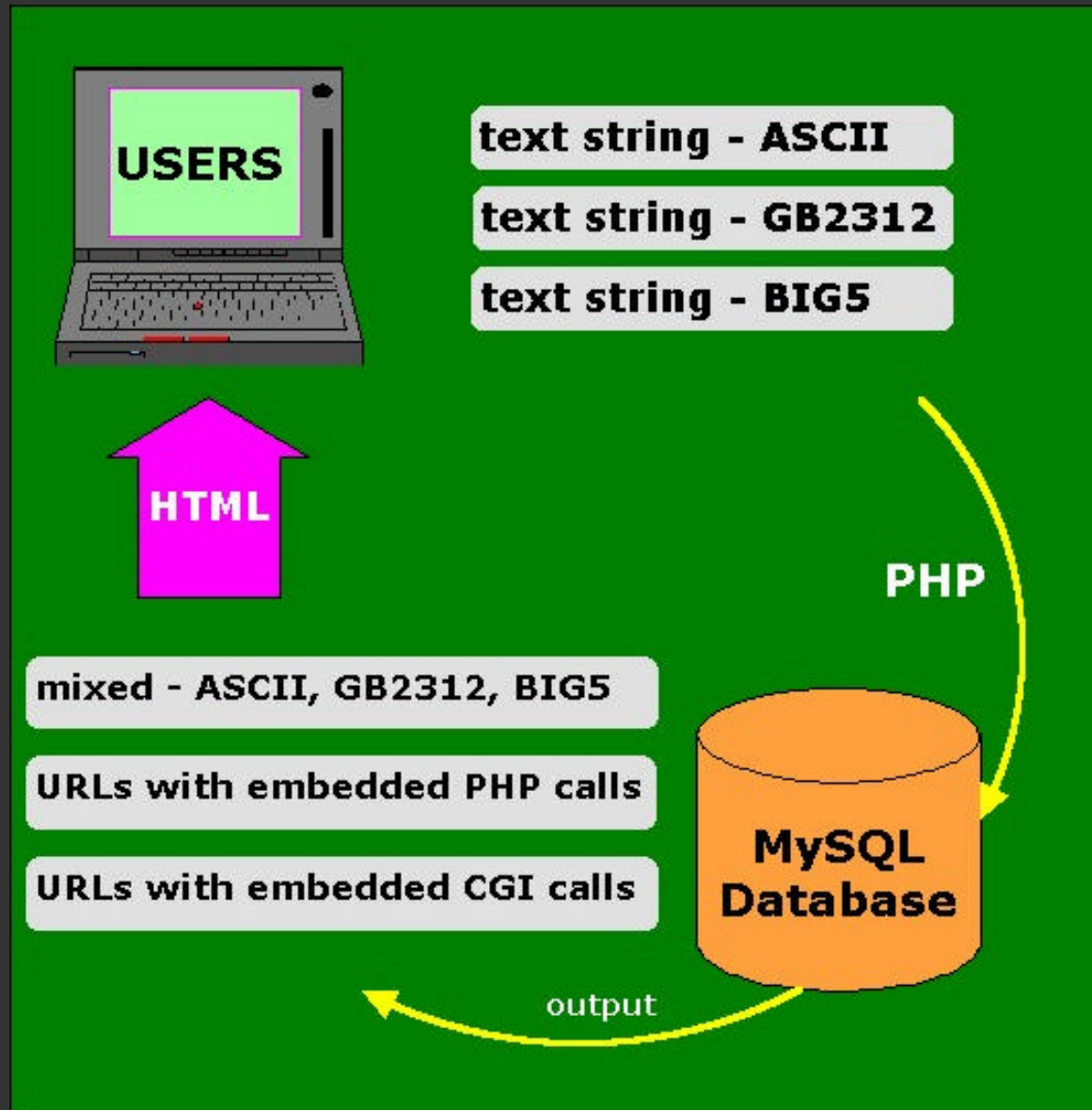
2 items found

- Chinese Name: **白沙黎族自治縣**
- Pinyin Name: **Baisha**
- Minority Name: **Lizu**
- Admin Unit: **Zizhixian**
- Prefecture: **Sanya Shi**
- Province: **Hainan**
- GB Code 1991:460030
- [Search Harvard Map Collection](#) for Hainan Province
- [Search Harvard Yenqing Library](#) Local Histories Collection for Hainan Province

- Chinese Name: **白沙工農區**
- Pinyin Name: **Baisha**
- Minority Name:
- Admin Unit: **Gongnongqu**
- Prefecture: **Daxian Diqu**
- Province: **Sichuan**
- GB Code 1991:513032
- [Search Harvard Map Collection](#) for Sichuan Province
- [Search Harvard Yenqing Library](#) Local Histories Collection for Sichuan Province

Results Contain Links to Launch New Searches

Embedded Search Requests



Embedding New Queries in URLs



URLs with embedded CGI calls

```
http://host/cgi_bin?mapserv/map=file.map?this=x&that=y
```



```
print("<a  
href='http://host/cgi_bin?mapserv/map=file.map?this='")  
print $row["this"]  
print("&that=")  
print $row["that"]  
print(" '> launch new webmap</a> ")
```



[launch new webmap](#)

CGI

A yellow curved arrow pointing from the "CGI" text towards the "Mapserver" cylinder.

How to Embed CGI Calls in URLs

Harvard Map Collection Search Results

2 map records found

Country / Region depicted:	China
Publication Date:	1935
Vernacular Language:	Chinese
Map Scale, :	1 :190,000
Pusey Call Number :	7823 HAI6 1935
Map Series Area Description:	Hainan Island
Number of Index / Locator Sheets:	1
Total Number of Map Sheets in Series:	12
Detailed Description:	Maps of Hainan Island, Chinese General Land Survey, 1935. Library has complete coverage of index, but not all of island is represented (southernmost regions not covered).
Guide Map Showing Approximate Area of Map Series:	Get Map (available for China only)

Request Launches Automatic Search



Refresh Map

- Browse map
- Query feature

- Zoom In
- Pan
- Zoom Out

Zoom Size



 counties

Powered by MapServer 0 35 70 105 140 175 210 mi

Mapserver Zooms to Requested Extent

Layer: China Counties 1990

GUOBIAO CODE 1991	CHINESE NAME	PINYIN NAME	ADMIN UNIT	CAPITAL CHINESE NAME	CAPITAL PINYIN NAME	CAPITAL ADMIN UNIT
460201	三亞市	Sanya Shi	Urban Districts	三亞市	Sanya Shi	City

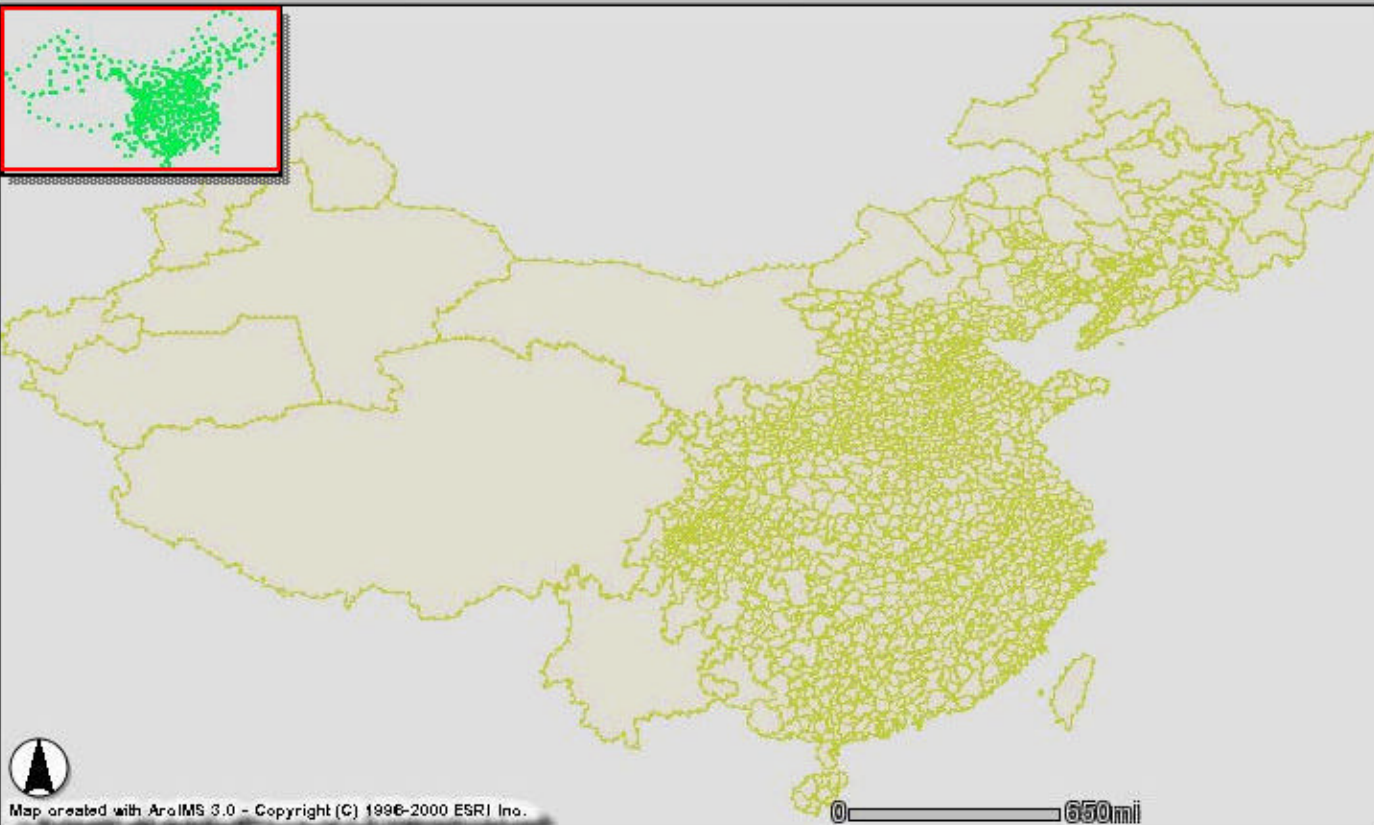
Map of Selected Feature



Query Feature - Shows Attributes

Mapservers

China GIS



Map created with ArcIMS 3.0 - Copyright (C) 1996-2000 ESRI Inc.

0 650mi

Layers

- | Visible | Active | Layer Name |
|-------------------------------------|----------------------------------|------------|
| <input type="checkbox"/> | <input checked="" type="radio"/> | chn1391c |
| <input type="checkbox"/> | <input type="radio"/> | chn1391p |
| <input type="checkbox"/> | <input type="radio"/> | chn1391s |
| <input type="checkbox"/> | <input type="radio"/> | chn1290c |
| <input type="checkbox"/> | <input type="radio"/> | chn1290l |
| <input type="checkbox"/> | <input type="radio"/> | chn1290s |
| <input type="checkbox"/> | <input type="radio"/> | chn1200c |
| <input type="checkbox"/> | <input type="radio"/> | chn1200l |
| <input type="checkbox"/> | <input type="radio"/> | chn1200p |
| <input checked="" type="checkbox"/> | <input type="radio"/> | chn1080c |
| <input type="checkbox"/> | <input type="radio"/> | chn1080l |
| <input checked="" type="checkbox"/> | <input type="radio"/> | chn1080p |
| <input type="checkbox"/> | <input type="radio"/> | chn0741c |
| <input type="checkbox"/> | <input type="radio"/> | chn0741p |

Refresh Map

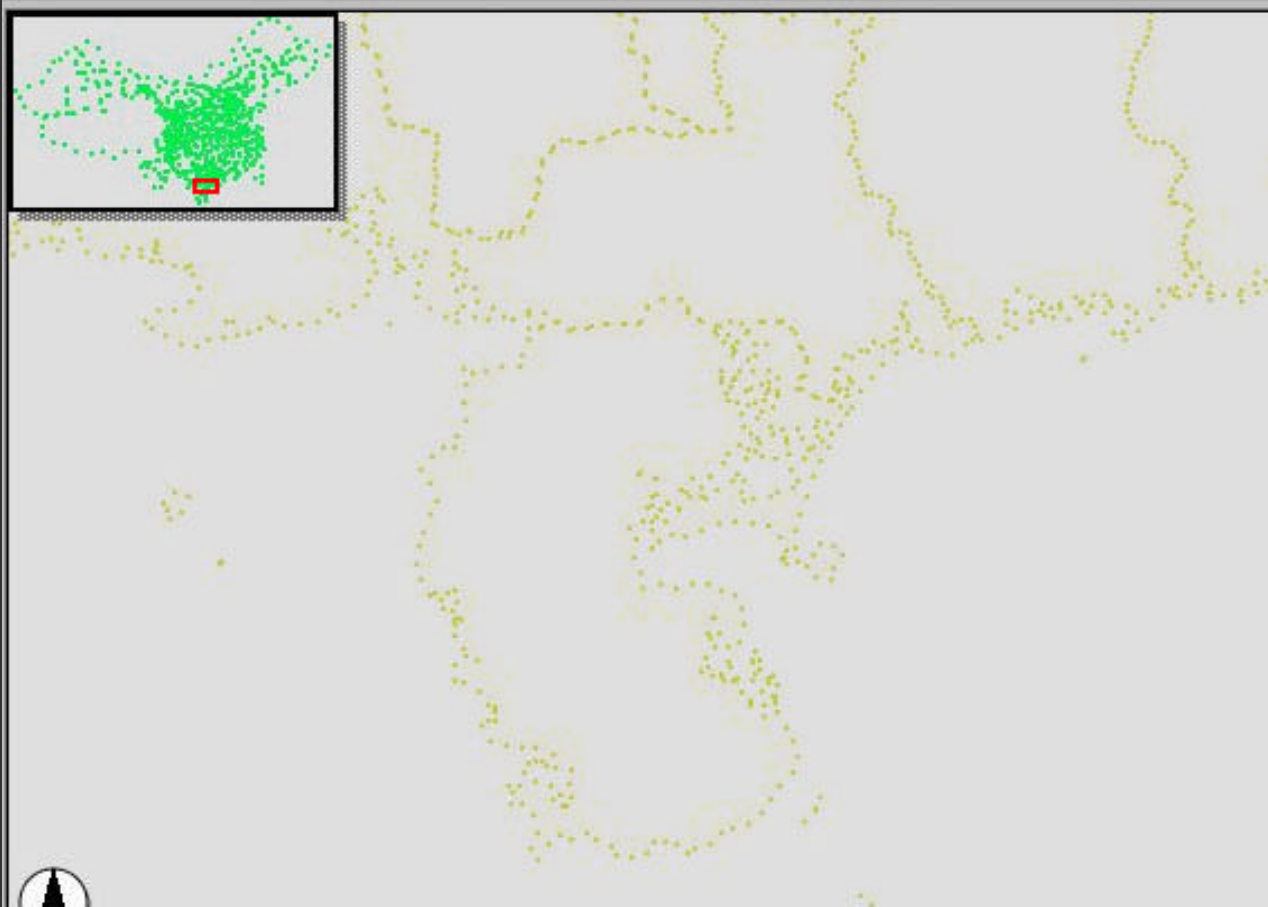
Hartwell GIS - Geospatial Library

China GIS

Map created with ArcIMS 3.0 - Copyright (C) 1996-2000 ESRI Inc.

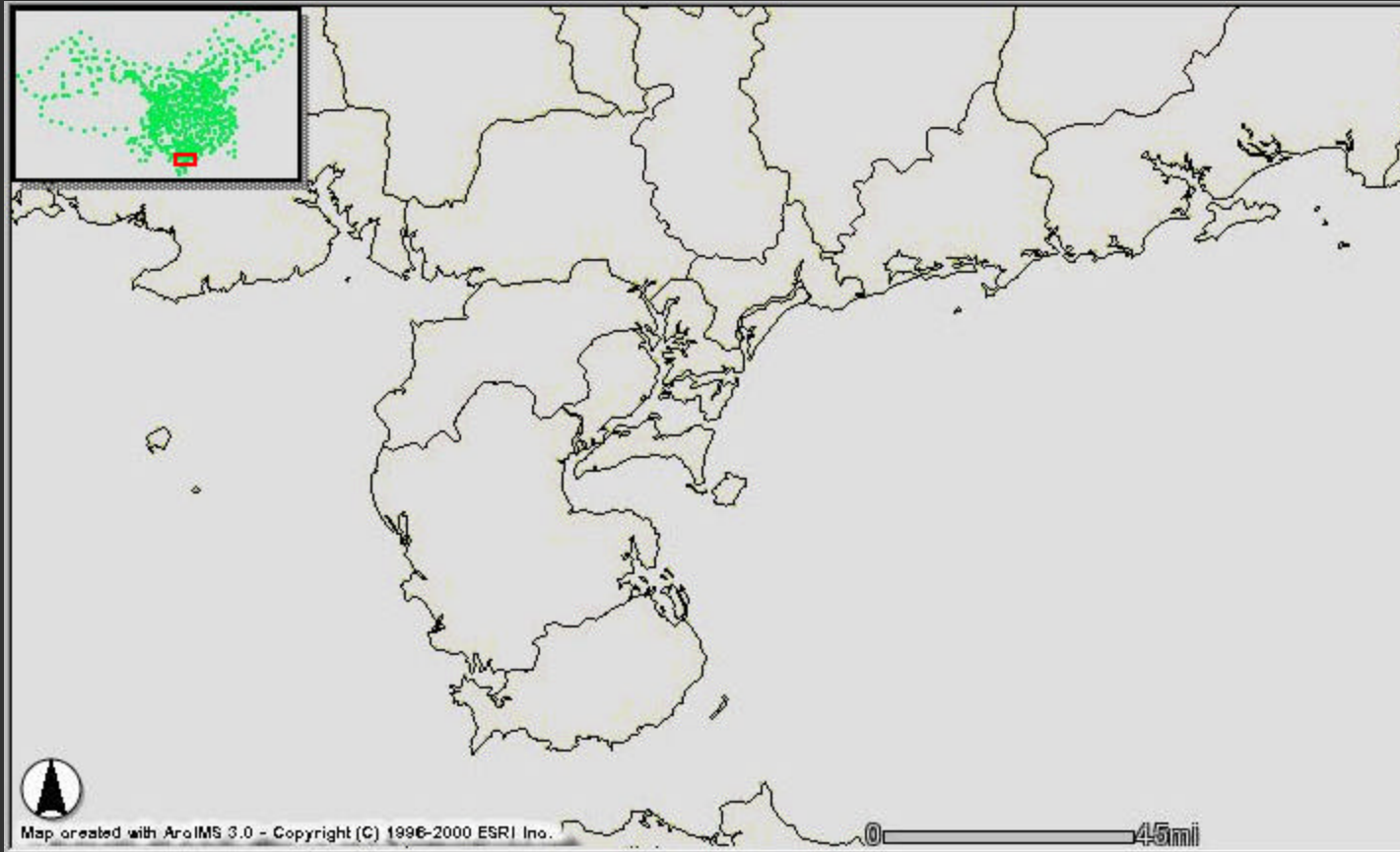
CODE	LEVEL1_H	LEVEL2_H	LEVEL3_H	LEVEL4_H	LEVEL5_H	H_PINYIN_N	H_UNICODE_	H_ADMIN_TY	H_SUP_PROV	H_SUP_CHF
M008100312321	00	81	00	31	23	Ningyuan	𠄎	Xian	Ming dynasty	𠄎#N

Hartwell GIS - Zoomed in with Info Request



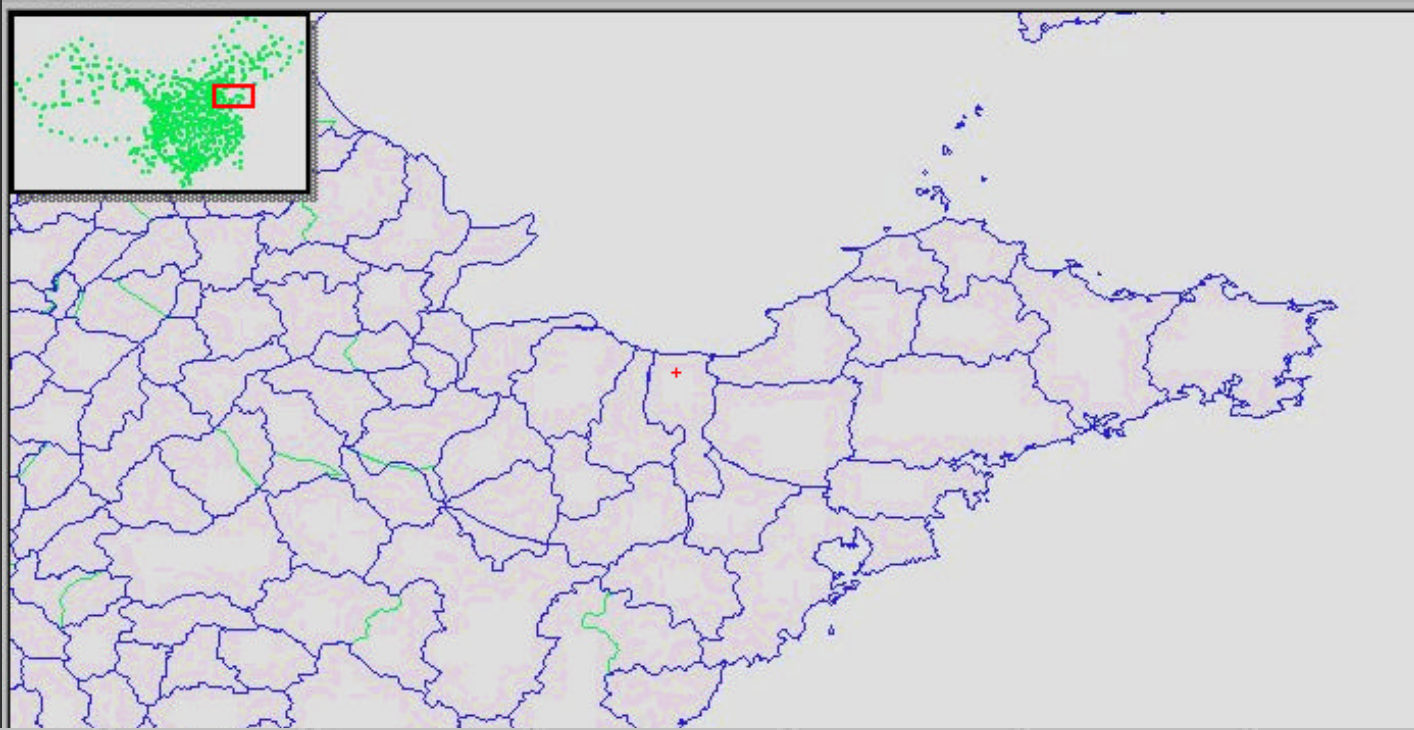
CODE	LEVEL1_H	LEVEL2_H	LEVEL3_H	LEVEL4_H	LEVEL5_H	H_PINYIN_N	H_UNICODE_	H_ADMIN_TY	H_SUP_PROV	H_SUP_CH
M008100312321	00	81	00	31	23	Ningyuan	'ç»'	Xian	Ming dynasty	©Ó#N

Zoomed in Showing Prefectures



CODE	LEVEL1_H	LEVEL2_H	LEVEL3_H	LEVEL4_H	LEVEL5_H	H_PINYIN_N	H_UNICODE_	H_ADMIN_TY	H_SUP_PROV	H_SUP_CH
M008100312321	00	81	00	31	23	Ningyuan	'ç»'	Xian	Ming dynasty	@ú#N

Zoomed in Showing Counties

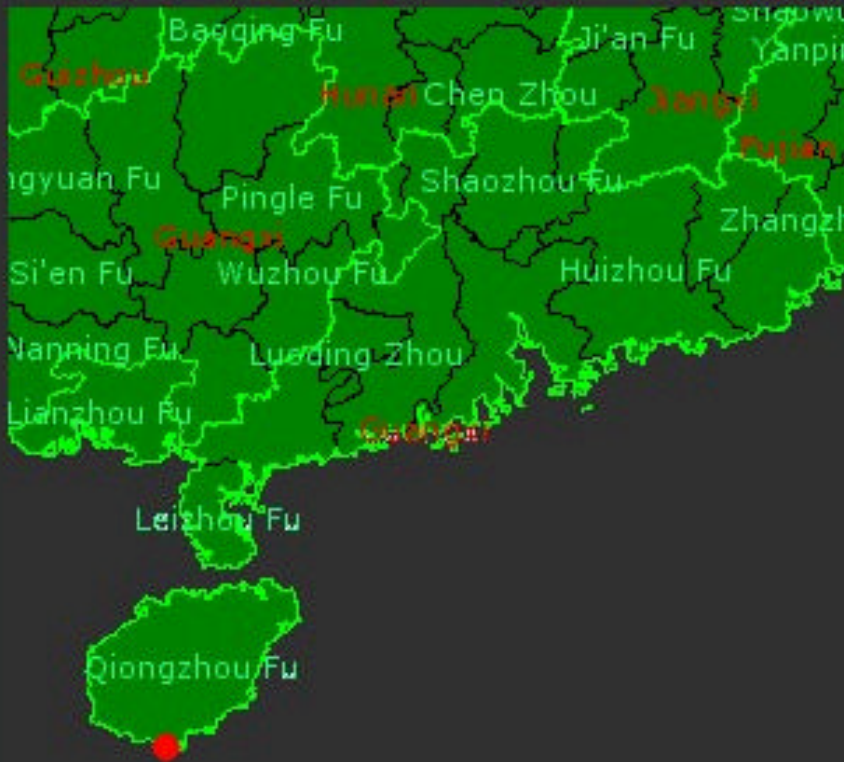


H_PINYIN_N	H_UNICODE_	H_ADMIN_TY	H_SUP_PROV	H_SUP_CHPV	H_PROVINCE	H_CHINPROV	H_PREFECT
Changyi	昌邑	Xian	Jin dynasty	鲁N	Shandong Dong Lu	鲁F, 鲁F, 鲁F	Wei Zhou

H_PINYIN_N	H_UNICODE_	H_ADMIN_TY	H_SUP_PROV	H_SUP_CHPV	H_PROVINCE	H_CHINPROV	H_PREFECT
Beihai	邳	Xian	Tang dynasty	鲁N	He'nan	鲁e, 鲁n	Qing

Southern Song overlay on Tang - Counties

Guide Map Showing Province Location:



0 95 190 285 380 475 570 mi

Guide Map Showing Country Location:

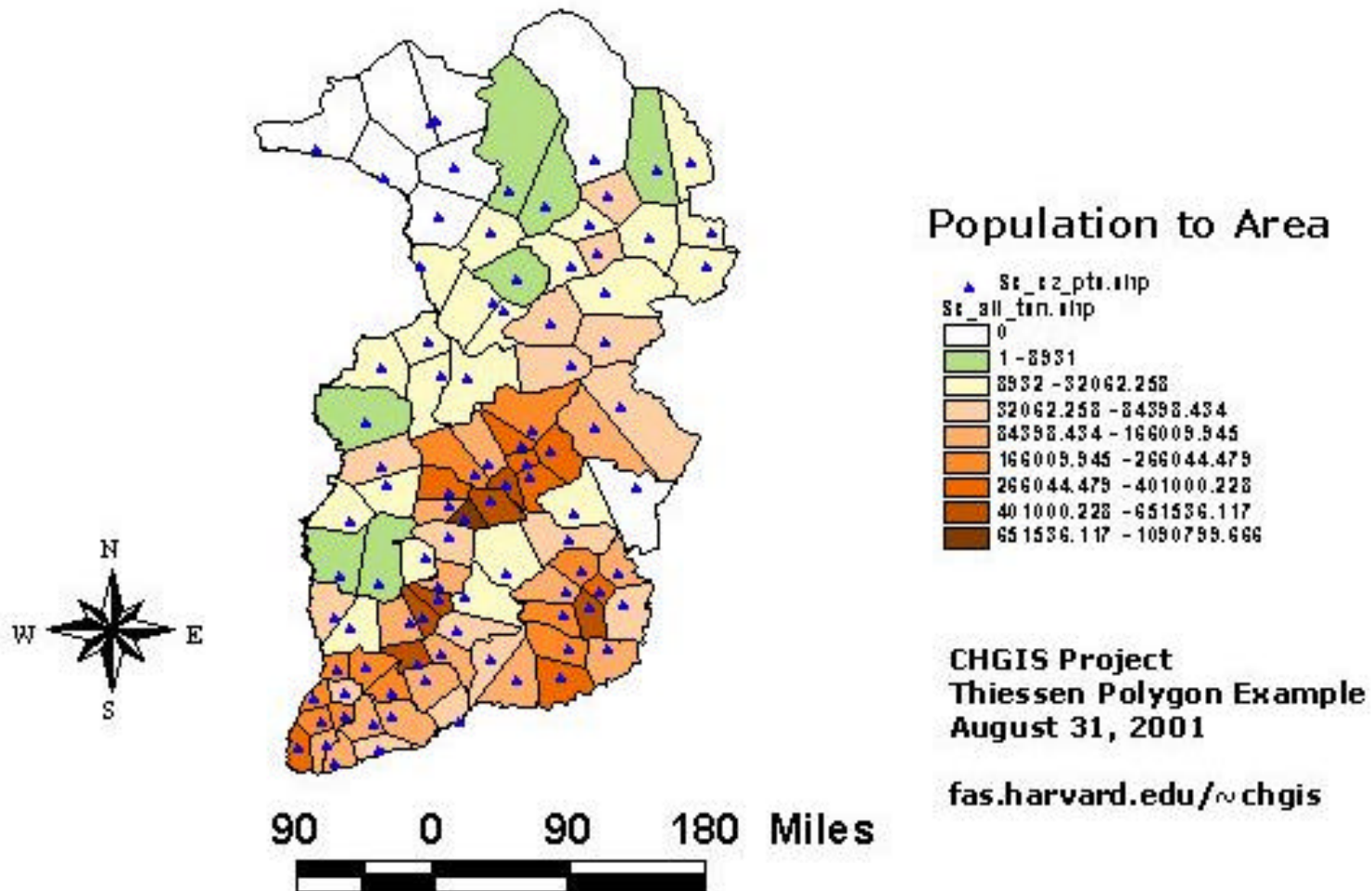


0 760 1520 2280 3040 3800 4560 mi

CHGIS 1820 Placename Searches

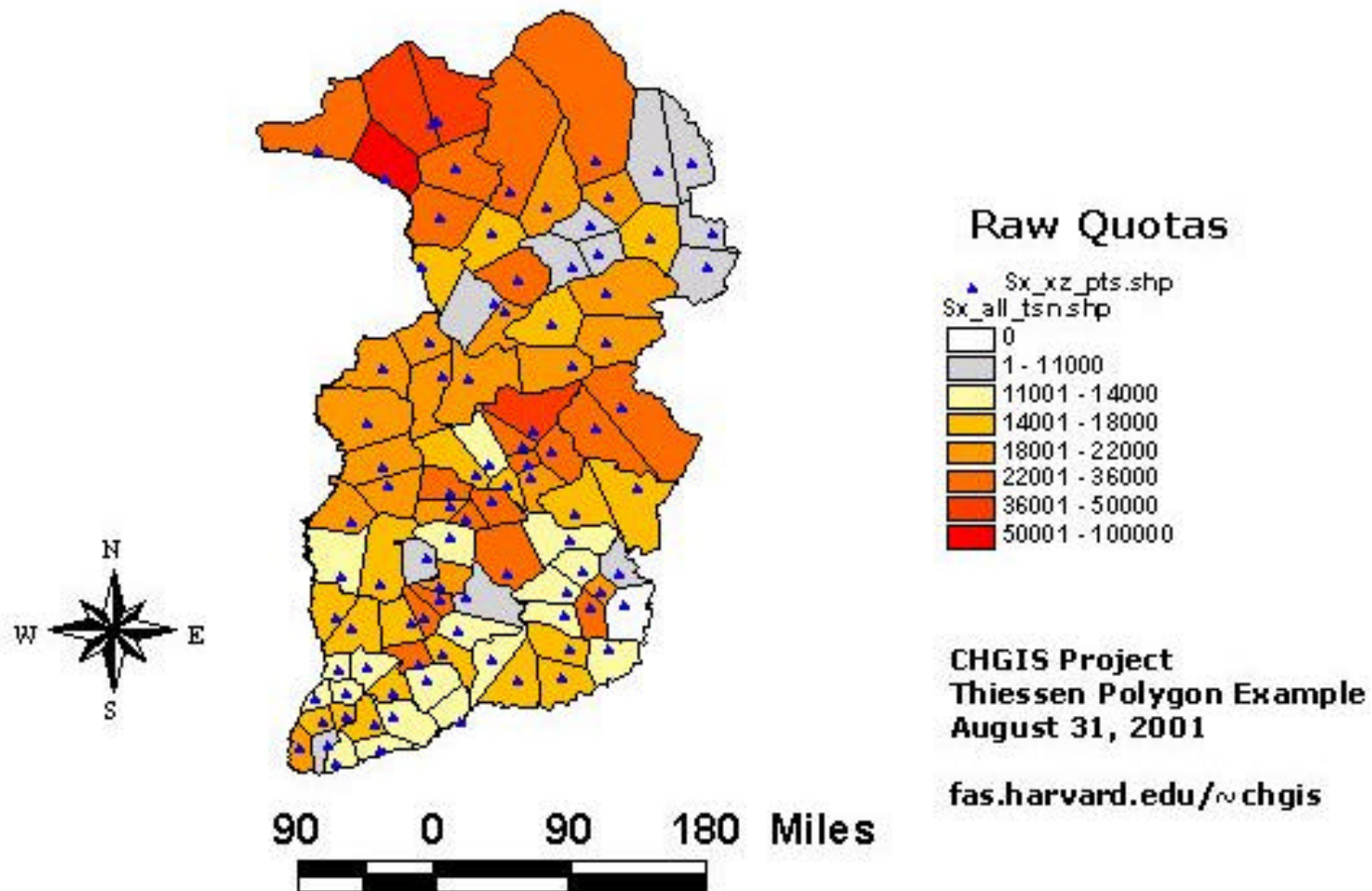
CHGIS for Historical Data Display

Shanxi - Male Population - CE 1820 (normalized by county area)



Approximate Boundaries - Thiessen Polygons

Shanxi - Changping Quota - CE 1820



Approximate Boundaries - Thiessen Polygons



China Historical GIS Project

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