

IAI/UM Summer Institute 2000

Mini-Project: Land Cover and land use change at the basin, state and local scales of Amazonia

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Participant: Andrea Chavez/PERU

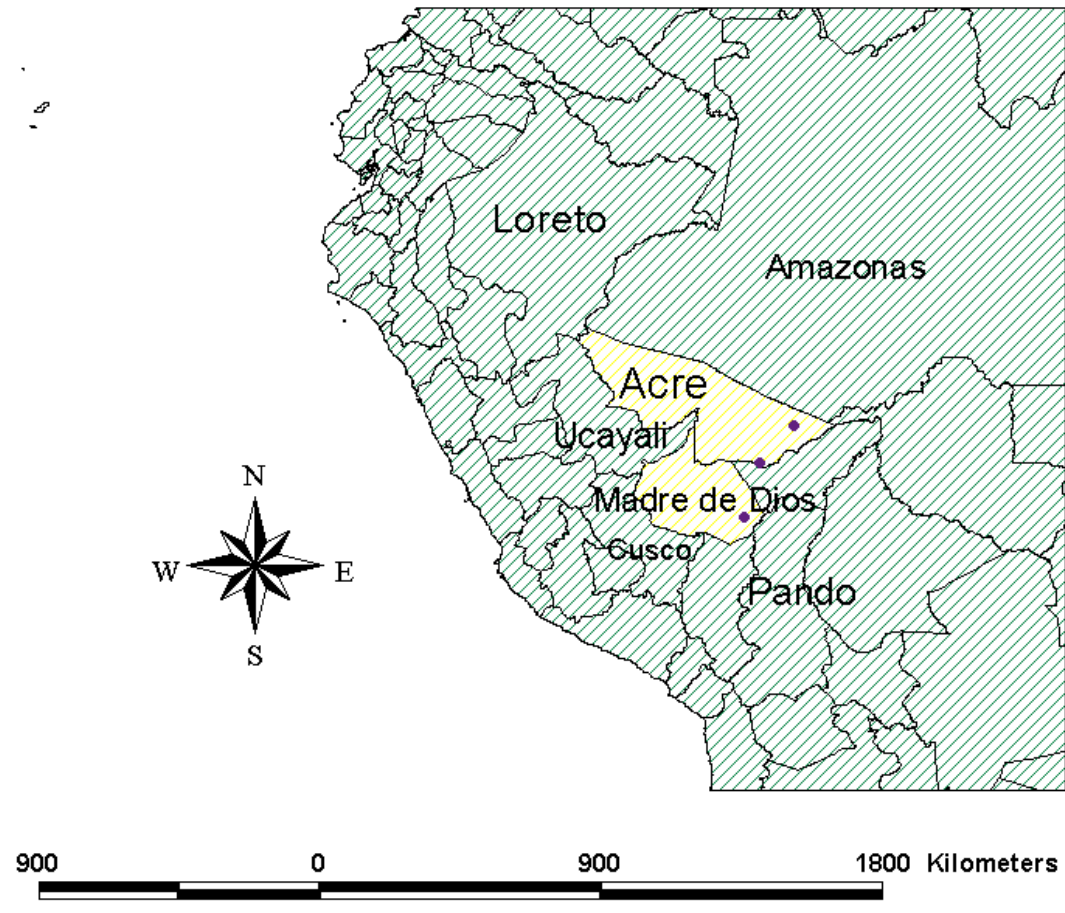
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Comparative Case Studies: ACRE and Madre de Dios Regional Estimates of Burning using GOES data

GOES = Geostationary Operational Environmental Satellite

- GOES is the most effective means of gaining systematic and repetitive observations of fire detection
- Real time retrospective information about forest fires
- GOES can be accessed every 15 minutes
- A single pixel gets larger due to increased viewing angles over the curved earth's surface.

Burning Site Selection



Sequential GOES imagery during 1998

HYPOTHESIS:

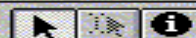
1. Patterns of increased burning activities along areas with roads
2. Increase change in fires in ACRE due to nearby distance to roads
3. Prediction for the region of Madre de Dios are scary if results of ACRE are applied to the Peruvian case

DATA:

- fire location (lat/long)
- estimates of fire size
- temperature
- ecosystem type
- fire flag (fire pixel attributes)



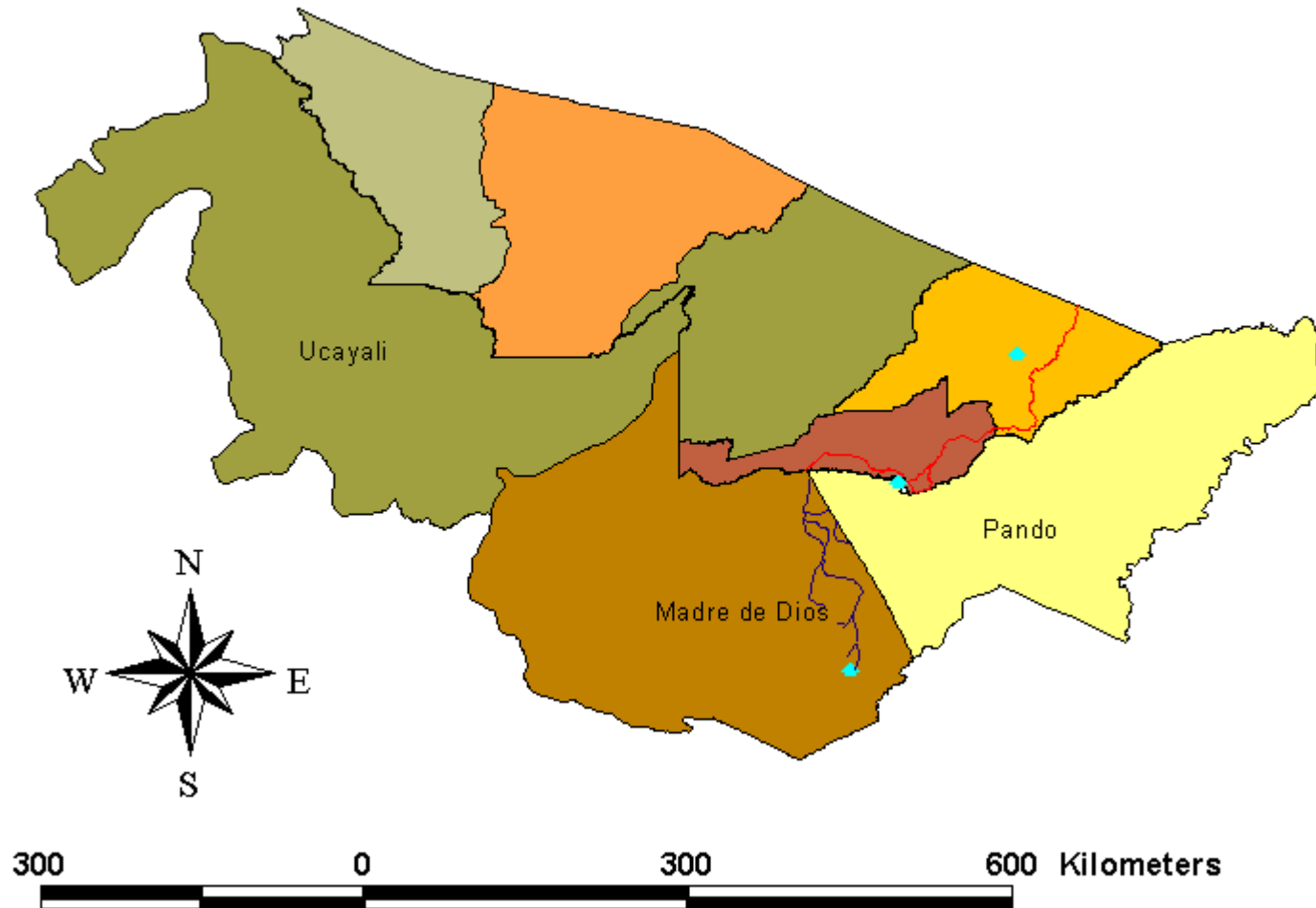
0 of 419 selected



Attributes of Hot_peru50.shp

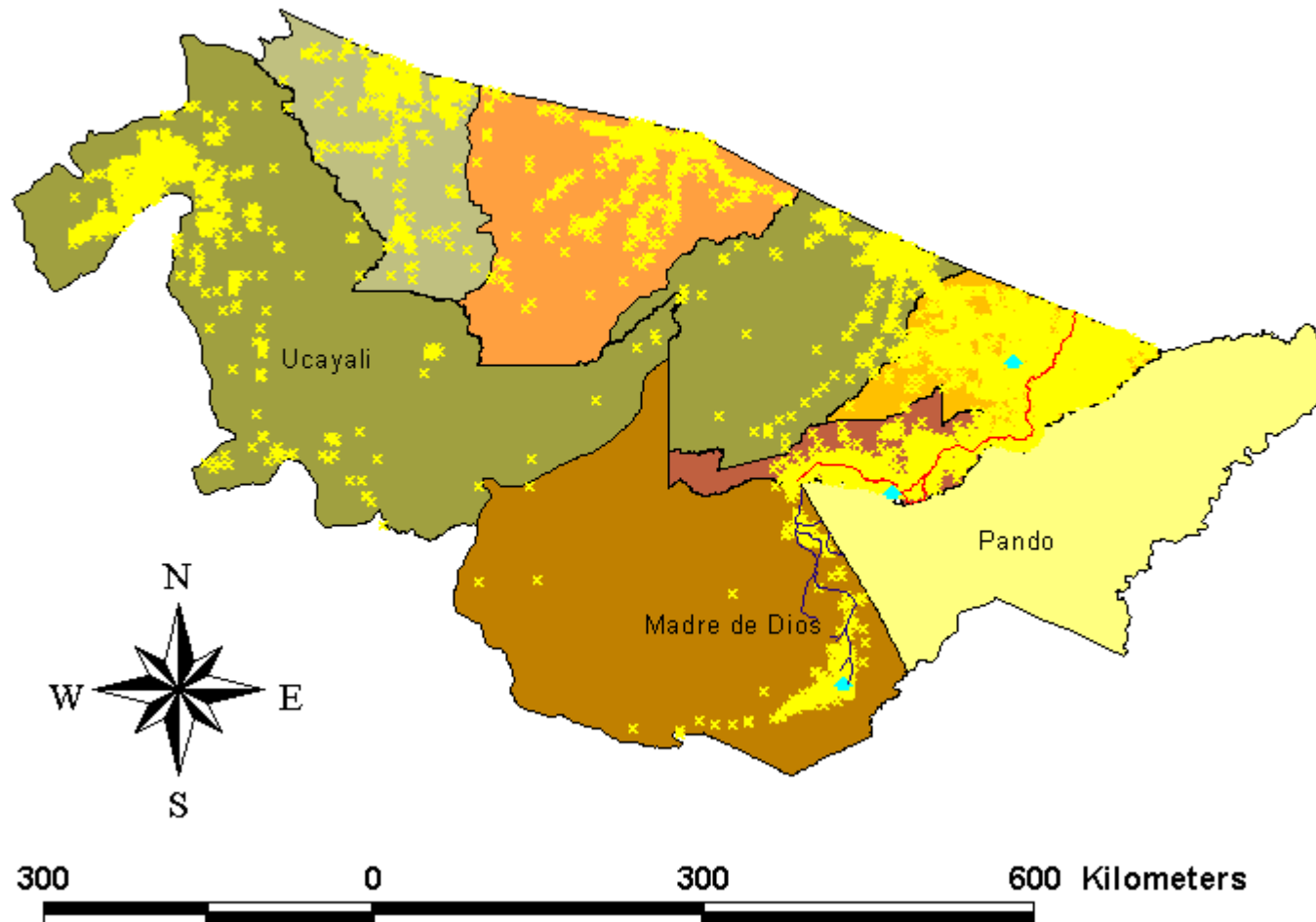
Shape	Daterange	Time	Month	Lon	Lat	Size	Temp
Point	98244-98273	1445	sep	-69.16	-10.78	0.1217	448
Point	98244-98273	1445	sep	-69.18	-10.78	0.2522	404
Point	98244-98273	1445	sep	-69.18	-10.78	0.3026	402
Point	98244-98273	1445	sep	-69.39	-10.80	0.3239	404
Point	98244-98273	1445	sep	-69.16	-10.80	0.1666	433
Point	98244-98273	1445	sep	-69.36	-10.82	0.3144	402
Point	98244-98273	1445	sep	-69.37	-10.82	0.2552	439
Point	98244-98273	1445	sep	-69.36	-10.82	0.3874	400
Point	98244-98273	1445	sep	-69.41	-10.82	0.0721	476
Point	98244-98273	1445	sep	-69.37	-10.82	0.1758	431
Point	98244-98273	1445	sep	-69.26	-10.82	0.2344	409
Point	98244-98273	1445	sep	-69.51	-10.89	0.2085	408
Point	98244-98273	1445	sep	-69.24	-10.89	0.1836	419
Point	98244-98273	1445	sep	-69.59	-10.93	0.2375	410
Point	98244-98273	1445	sep	-69.05	-10.98	0.0159	600
Point	98244-98273	1745	sep	-69.38	-10.64	0.0055	916
Point	98244-98273	1745	sep	-69.66	-10.67	0.0103	664
Point	98244-98273	1745	sep	-69.30	-10.74	0.3391	449
Point	98244-98273	1745	sep	-69.32	-10.75	0.0766	492
Point	98244-98273	1745	sep	-69.19	-10.75	0.2106	430
Point	98244-98273	1745	sep	-69.34	-10.76	0.2305	435
Point	98244-98273	1745	sep	-69.19	-10.76	0.0724	558
Point	98244-98273	1745	sep	-69.34	-10.77	0.0882	487
Point	98244-98273	1745	sep	-69.17	-10.77	0.1907	446
Point	98244-98273	1745	sep	-69.37	-10.78	0.3626	430
Point	98244-98273	1745	sep	-69.18	-10.78	0.0181	583
Point	98244-98273	1745	sep	-69.19	-10.78	0.0094	681
Point	98244-98273	1745	sep	-69.32	-10.78	0.3283	444
Point	98244-98273	1745	sep	-69.39	-10.78	0.1361	431
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Point	98244-98273	1745	sep	-69.32	-10.79	0.0908	545
Point	98244-98273	1745	sep	-69.28	-10.79	0.1166	486
Point	98244-98273	1745	sep	-69.17	-10.79	0.3098	404
Point	98244-98273	1745	sep	-69.16	-10.79	0.1644	476
Point	98244-98273	1745	sep	-69.37	-10.79	0.1099	580
Point	98244-98273	1745	sep	-69.33	-10.79	0.0509	520
Point	98244-98273	1745	sep	-69.34	-10.80	0.0815	514

Detail of Burning Areas

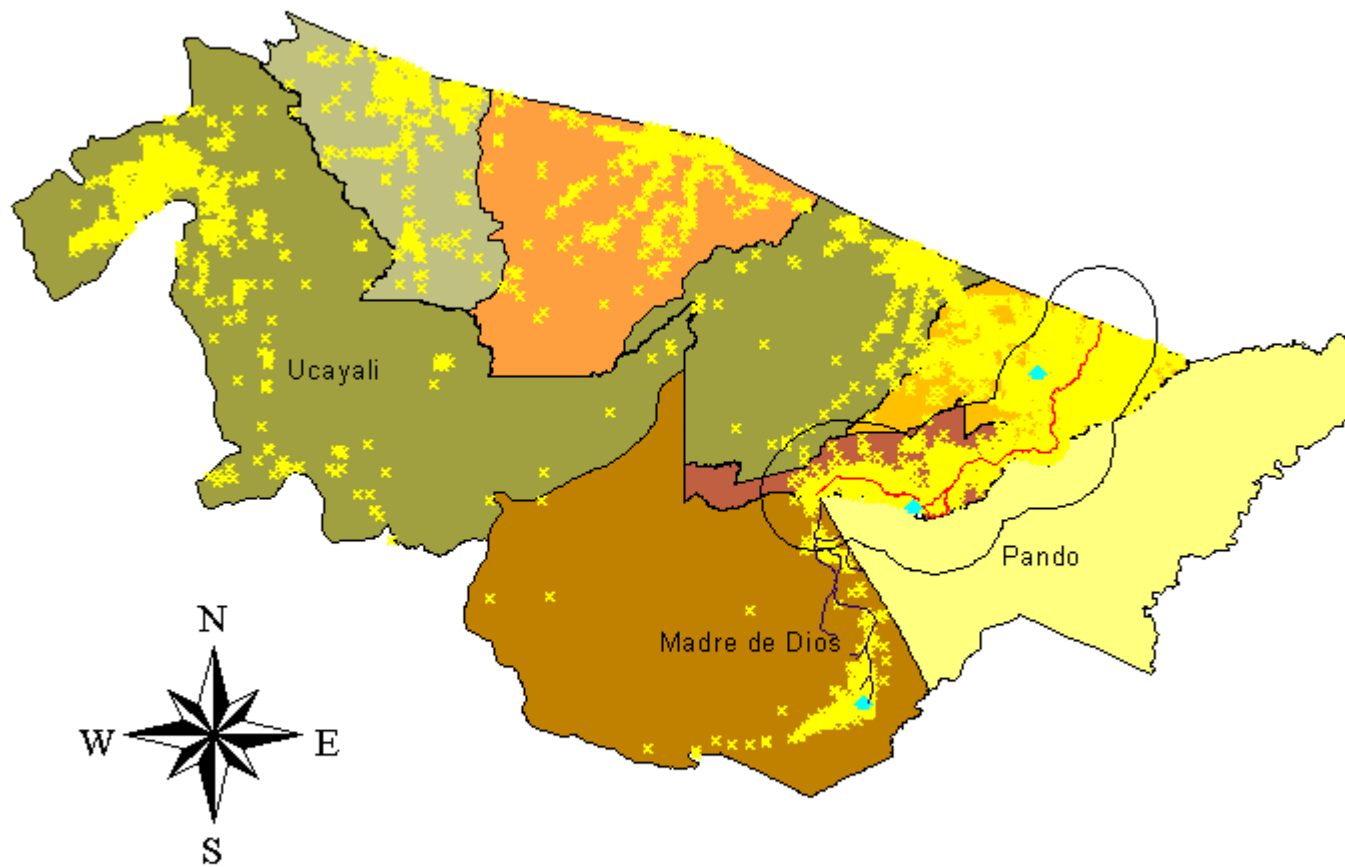


1. What is the relative amount of burning, estimated using GOES hot pixel data, along the highway BR-317 from Rio Branco to Assis Brasil and from Assis Brasil to Puerto Maldonado during 1998?
2. Are there significant differences in the burning time frame comparing Acre and Madre de Dios?
3. What are the implications of this information for public policy in these regions?

Hot Pixel Area 1998

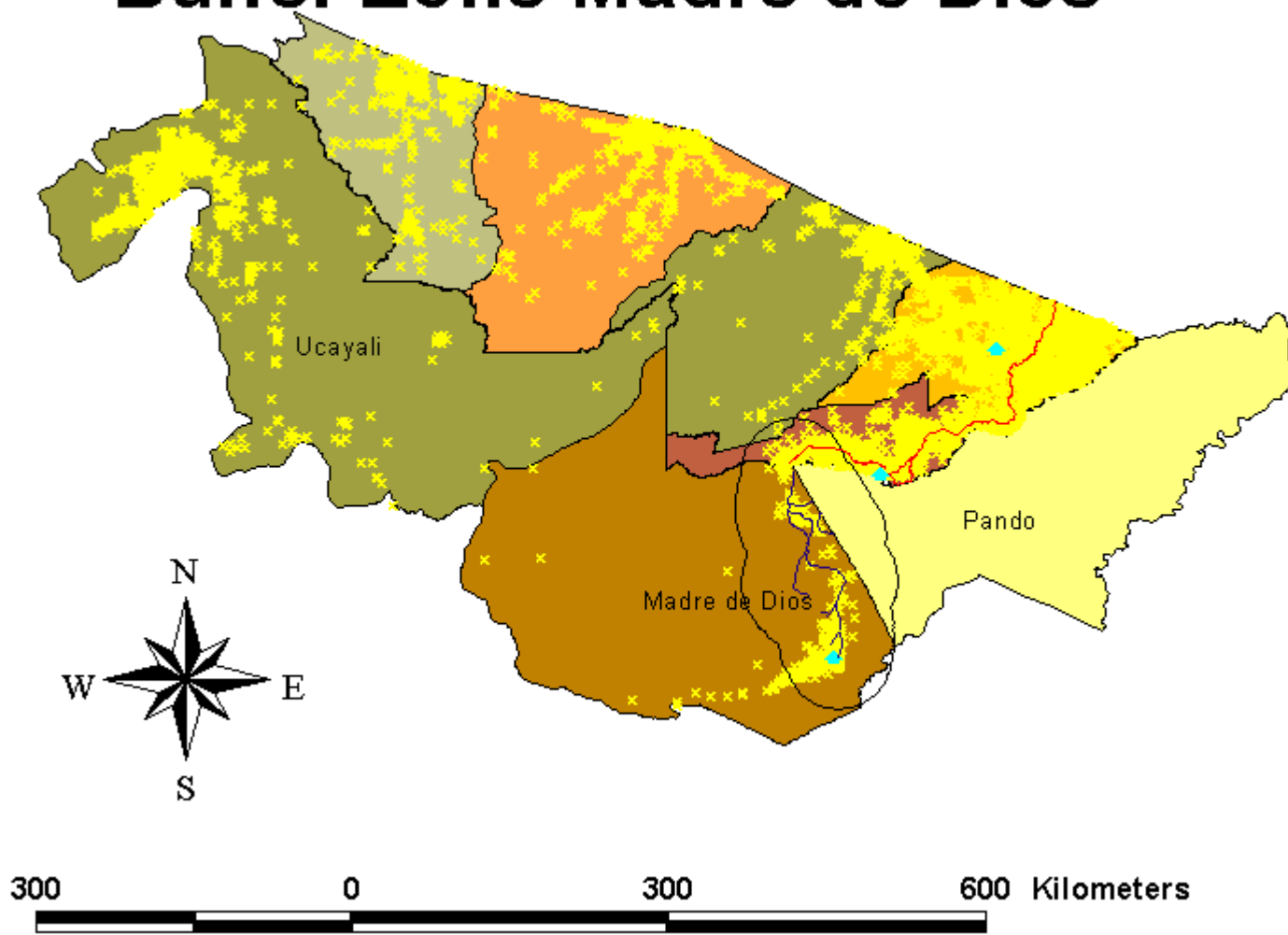


Buffer Zone ACRE

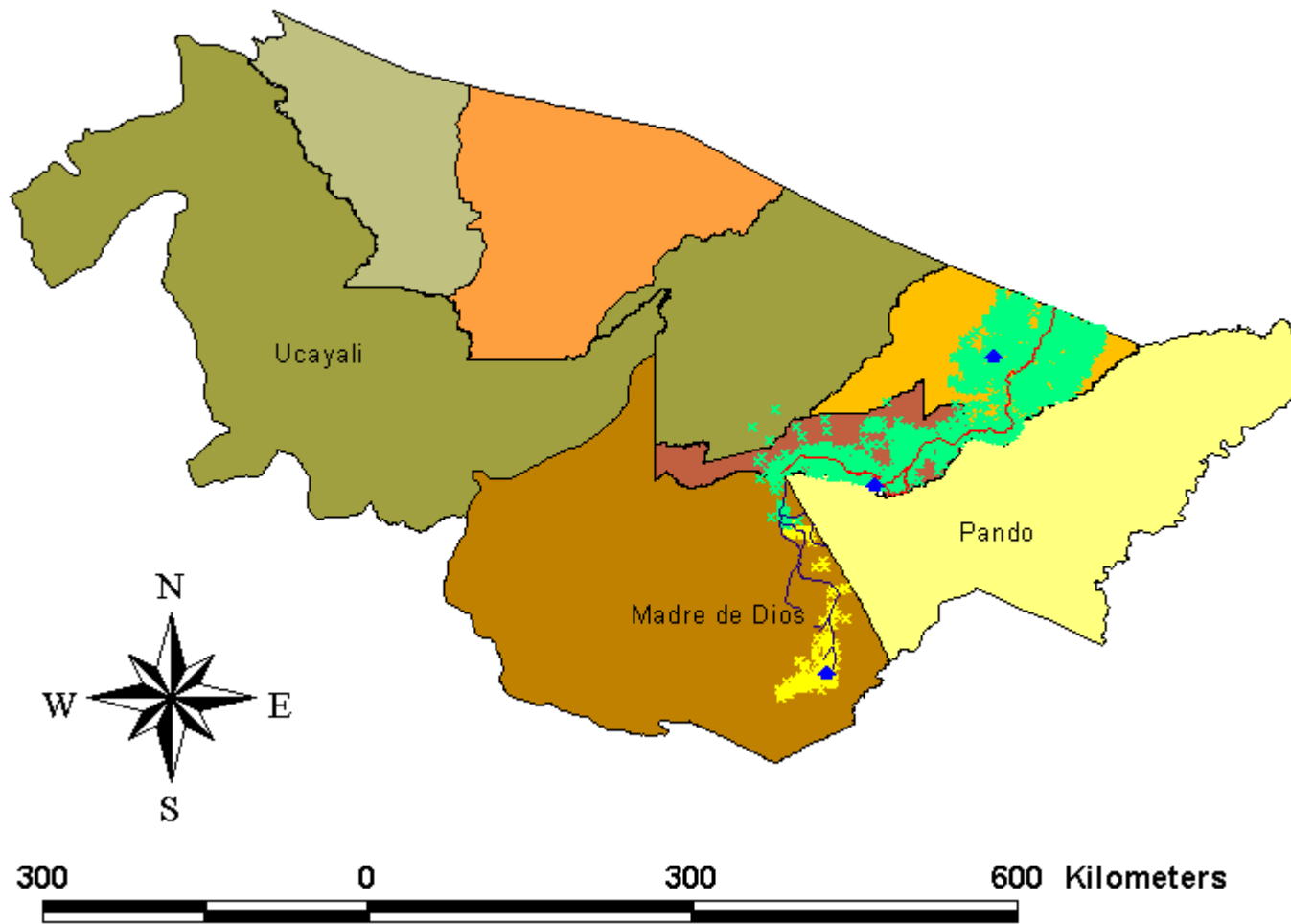


300 0 300 600 Kilometers

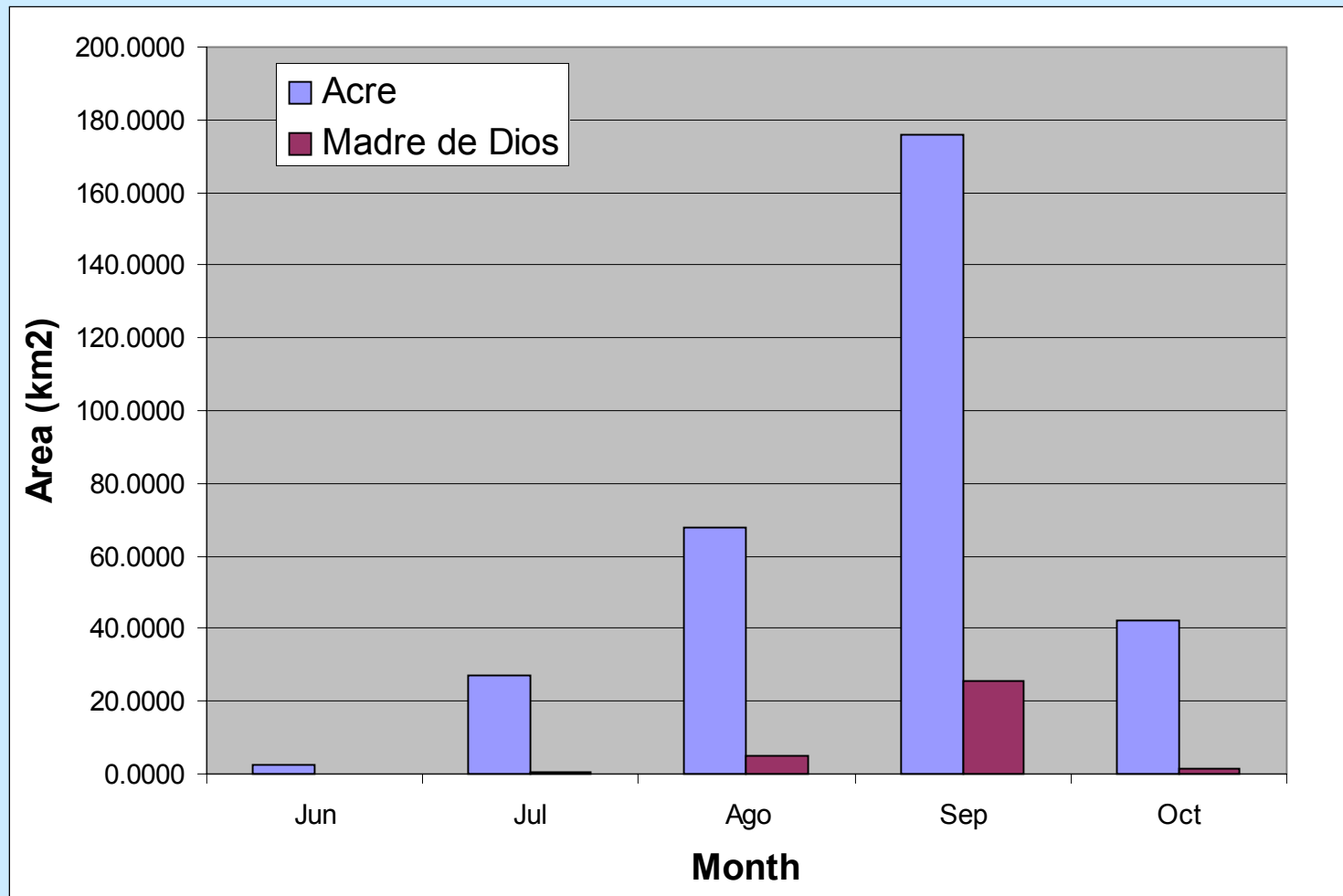
Buffer Zone Madre de Dios



Hot Pixel with 50 km Buffer Zone



Comparative Area Differences ACRE - Madre de Dios



Public Policy Implications:

- Decision-Making procedures at the local level
- Land Use and Land Cover Change Impact
- Private and Public Sector
- Protocols/Agreements/Community
- Change at the household - local or regional impact?
- Data interpretation
- Need more research

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[http://cimss.ssec.wisc.edu/cgi-
in/fire.cgi](http://cimss.ssec.wisc.edu/cgi-bin/fire.cgi)>[http://cimss.ssec.wisc.edu/cgi
-bin/fire.cgi](http://cimss.ssec.wisc.edu/cgi-bin/fire.cgi).