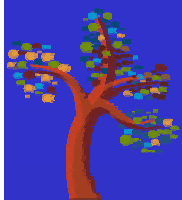


Latin America Wildfire Situation: *An Outlook*



International Wildland Fire Summit – 8 October 2003

Roberto Martinez-Mexico
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Mesoamerica Forest Resources, 2002

Country	Total Area (1000 ha)	Forest Total Area (1000 ha) (1)	% Total Area (%)	Area per capita (ha)	Forest Plantations (1000 ha)	Wood Biomass forests (t / ha)
BELICE	2,280	1,348	59.1	5.7	3	211
COSTA RICA	5,106	1,968	38.5	0.5	178	220
EL SALVADOR	2,072	121	5.8	0.05	14	202
GUATEMALA	10,843	2,850	26.3	0.3	133	371
HONDURAS	11,189	5,383	48.1	0.9	48	105
MEXICO	190,869	55,206	28.9	0.6	267	54
NICARAGUA	12,140	3,278	27.0	0.7	46	161
PANAMA	7,443	2,876.0	38.6	1.0	40	322
Region Total	241,942	73,030	30	0.6	729	95
World Total	13,063,900	3,869,455	29.6	0.6	186,733	109

(1) Natural forests and plantations total

Source : FAO-2002



Mesoamerica Forest Situation (2002)

- Coniferous and tropical forests “Mesoamerican Biological Corridor”: natural resources with environmental / social & economic importance, subject to degradation and deforestation processes.
- 1.3 mill ha per year of total losses, equals to 1.8% per year.
- Social pressure by population growing and subsistence necessities. Valuation from society by environmental services, more citizen participation, NGO's.
- Necessary greater International Cooperation to strengthen and to consolidate the governmental efforts to protect the forest ecosystems.
- Important regional effort (CCAD – CCAB & CCAP) to obtain financial resources from international community.
- Lack greater institutional impulse and donation of financial resources for the application of Policies of Forest Protection.
- Biggest environmental issue: Deforestation and wildfires.



Major Occurrence and Wildfire Damages in Mesoamerica

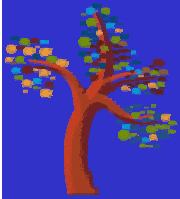
Country	Wildfire Number	Affected area by use (ha)			% Total Area
		Forests	Agricultural & rangeland	Total	
BELICE	656	22,960	16,400	39,360	1.83%
COSTA RICA	1,511	52,885	37,775	90,660	1.78%
EL SALVADOR	227	7,945	5,675	13,620	0.64%
GUATEMALA	10,906	381,710	272,500	654,210	6.00%
HONDURAS	9,594	335,790	239,850	575,640	5.12%
NICARAGUA	15,196	531,860	379,900	911,760	7.51%
MEXICO	14,445	849,632	4,288,670	5,139,302	2.69%
PANAMA	4,196	146,860	104,900	251,760	3.33%
Total	56,731	2,329,642	5,345,670	7,676,312	3.17%
1998 Average	7,091	291,205	668,209	959,539	3.61%

Source : Central America Wildfire Workshop. San Pedro Sula, Honduras June/1998

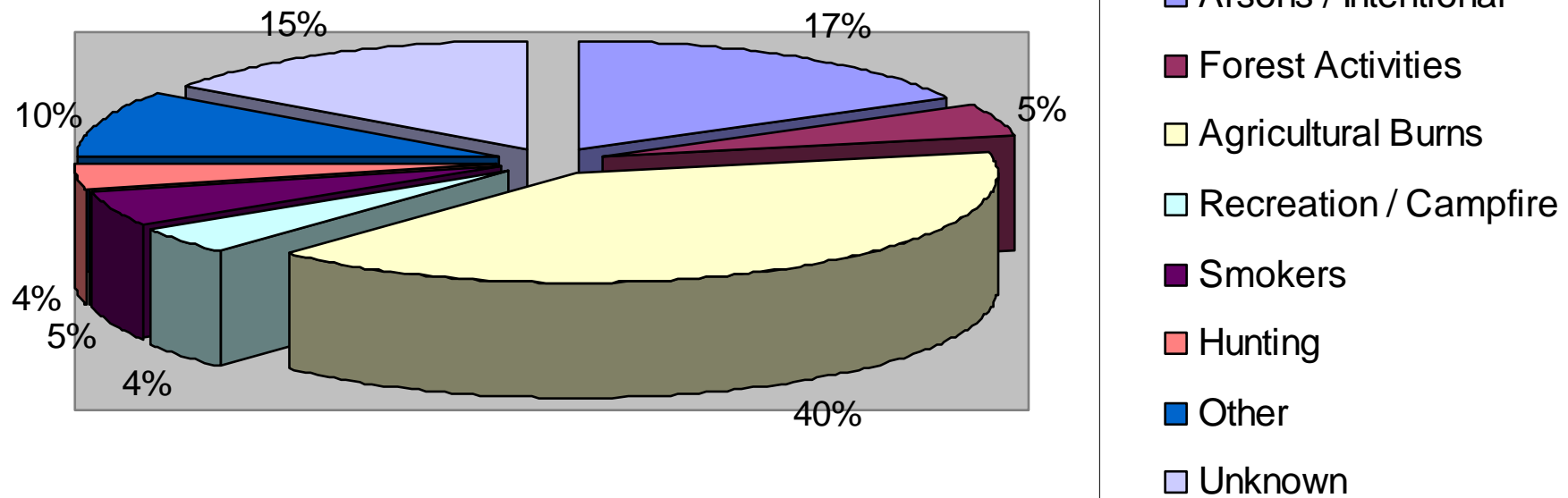
El Niño and the effects from the hurricanes in the forest cause major wildfire threat:

✓ In Central America it is estimated that there were affected in 1998 a total of 2,5 million Hectares (Much et al.1999).

✓ North of Quintana Roo, México (1989) 120,000 ha and Chimalapas, Oaxaca México (1998) 210,564 ha tropical forests. (SEMARNAP. 2000).



Estimated Wildfire Causes in Mesoamerica 1998



Causes: > 99% anthropic (estimate).

Agricultural Burns: Guat. (36%); Hond. (22%); Nica. (32%); Méx. (49%), Bel., Pan.

Forest Activities: Mex. (3%); Nica. (40%); Bel.

Arsons / Intentional: Guat. (23%); Hond. (56%); Nic. (5%); Mex. (17%); Pan.

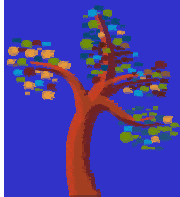
Recreation / Campfire: Hon. (4%); Mex. (12%); Pan.

Smokers: Mex. (11%); Bel., Pan.

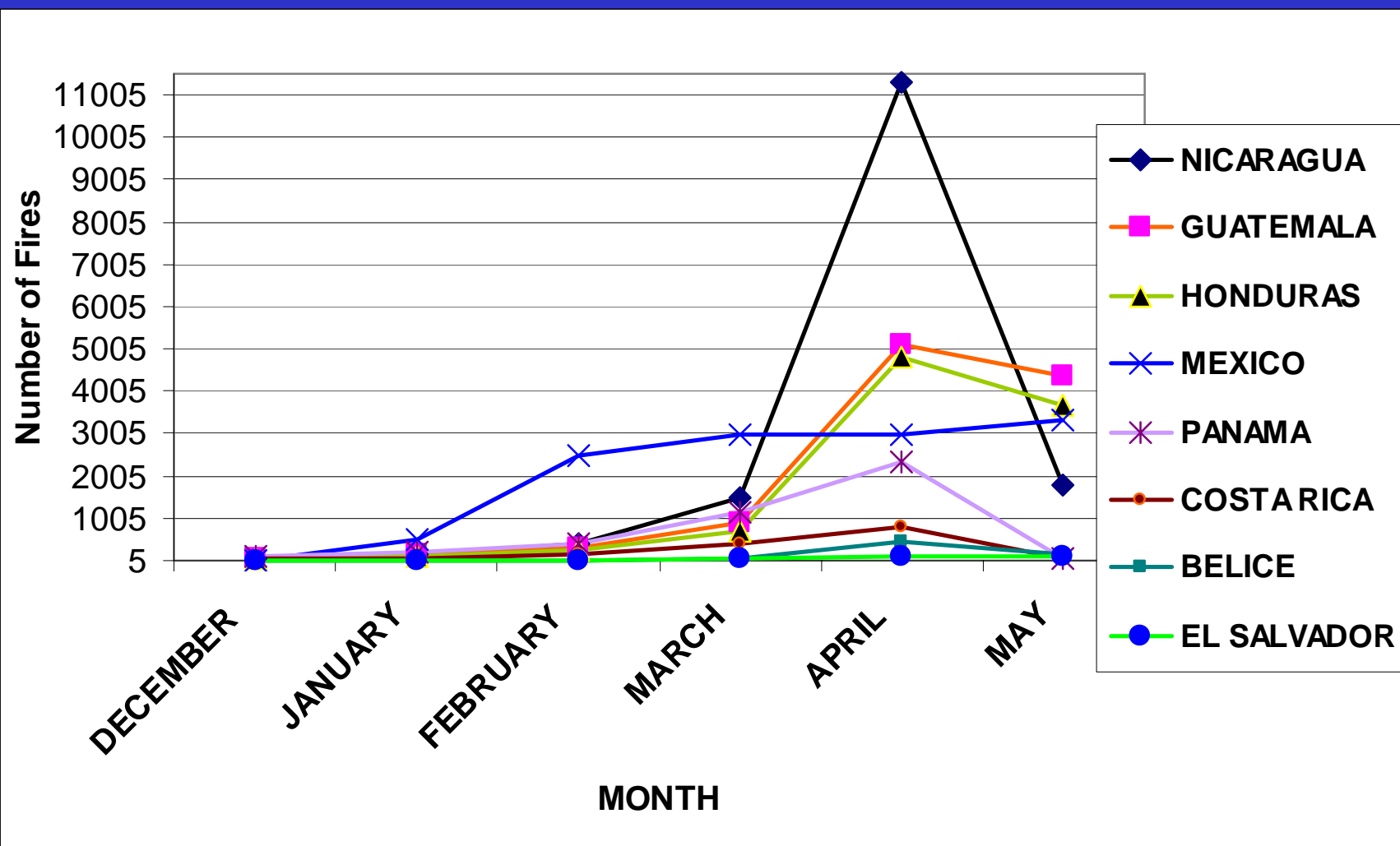
Hunting: Nica. (13%); Méx. (1%).

Other: Guat. (12%); Hon. (18%); Nica. (10%); Mex. (7); Bel. Pan.

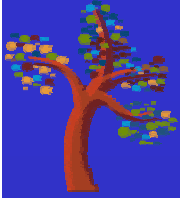
Unknown: Guat. (29%).



Wildfires Season by Country in Mesoamerica



Source : FAO-1998

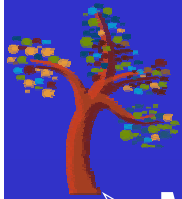


Wildfire Response by Institutions in Mesoamerica

Country	Multi-Institutional	Uni-Institutional
BELIZE	Forest Department / Army	
COSTA RICA		Environment and Energy Ministry – Wildfire National Commission
EL SALVADOR	Fire Department / National Emergency Committee	
GUATEMALA	National Wildfire Prevention and Control System: Environment and Natural Resources Ministry / Presidency Executive Coordination Secretary / CONRED / Army / National Forestry Institute / Protected Areas National Council	
HONDURAS		Government Forest Administration - COHDEFOR
NICARAGUA		National Forestry Institute (INAFOR)
MEXICO		National Forestry Commission (CONAFOR)
PANAMA		National Environmental Authority (ANAM) – National Wildfire Prevention and Control Commission (CONPRECMAIF)

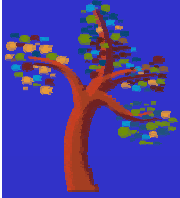
Multi-institutional: More than one public agency responsible of wildfire attention.

Uni-Institutional: Only one public agency responsible of wildfire attention and coordination.



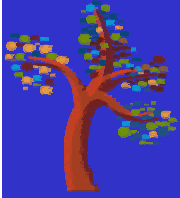
Mesoamerica Projects & Initiatives

- **Mesoamerican Cooperation Program** – Summit Meeting of Presidents of participating countries of The Dialog and Agreement Mechanism “Tuxtla IV”
- **Mesoamerican Biologic Corridor** – Corridor Consolidation Program - (PNUD); (GEF); (GTZ); (DANIDA); (CCAD); and Mexico, Belize, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panama Governments
- **World Food Program (WFP- UN)** – Program for the mobilization of volunteer fire fighter crews in Honduras.
- **Integrated Ecosystem Management in Indigenous and Community Lands in Central America** - (GEF)
- **PROCIG** – Central America Geographic Information Project. WB; (CATIE) and (CIAT)
- **Central America Regional Environmental Project**
PROARCA/CAPAS – USAID
- **National Emergency Plan for Wildfire Prevention and Control**, INAB
- **Wildfire Instructor Training and Formation Program** (OFDA-AID)



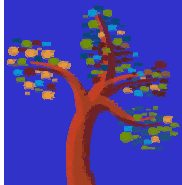
Cooperation Networks in Mesoamerica

- **British-Nicaraguan Cooperation: NOAA / MARENA / INAFOR – Satellite detection of hot spots**
- **Mesoamerican Wildfire Prevention and Control Program (CCAD – TUXTLA IV)**
- **Interamerican Biodiversity Information Network (IABIN)**
- **Hot Spot Detection with Remote Sensing Techniques Program. CONABIO – CCAD**
- **Central America Sustainable Development Alliance (ALIDES)**
- **Fire Management Working Group (NAFC) USA-Canada-México**



Future International Cooperation in Mesoamerica

- Implementation of regional mechanisms to ensure the technical and economic resource support from the international community to:
 - Strengthen and consolidate the government efforts from the countries of the Region on wildfire prevention, training, crew formation and specialized equipping, as well as establishment of incident response systems, etc.

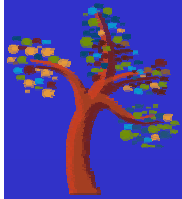


South American Forest Resources, 2002

Country	Area (1000 ha)	Forests (1000 ha) (1)	Percent from total Area (%)	Area per capita (ha)	Forest Plantations (1000 ha)	Wood Biomass Forests (t/ ha)
Argentina	273.669	34.64848	12.7	0.9	926	68
Bolivia	108.438	53.068	48.9	6.5	46	183
Brasil	845.651	543.905	64.3	3.2	4.982	209
Chile	74.881	15.536	20.7	1.0	2.017	268
Colombia	103.871	49.601	47.8	1.2	141	196
Ecuador	27.684	10.557	38.1	0.9	167	151
French Guyana	8.815	7.926	89.9	45.6	1	253
Guyana	21.498	16.879	78.5	19.7	12	253
Paraguay	39.730	23.372	58.8	4.4	27	59
Perú	128.000	65.215	50.9	2.6	640	245
Suriname	15.600	14.113	90.5	34.0	13	253
Uruguay	17.481	1.292	7.4	0.4	622	0
Venezuela	88.206	49.506	56.1	2.1	863	233
Total South Am.	1.754.741	885.618	50.5	2.6	10.455	203
Total World	13.063.900	3.869.455	29.6	0.6	186.733	109

(1) Natural Forests and Plantations, Total

Source : FAO



South American Forest Situation (FAO- 02)

- Forests: A great renewable resource, with an environmental/social/economic importance, subject to important deforestation processes
- **Net annual losses of 3.7 million ha, equals to a annual 0.4%**
- More social pressure by population growing and its distribution (rural/urban). Valuation from society due environmental services, citizen participation, NGO's
- **Total incorporation of sustainable forest management, following the international agreements. Need more international cooperation to strengthen research of complex and extended forest ecosystems**
- 4% world exportation (50% Brasil, 25%Chile); wood production 299 mill m³/ha (9,15 % world)
- **Institutional and forest politic reorganization**
- Biggest environmental issue: **Wildfires**



South American Wildfire Data

Country	Wildfires	Affected Area by fuel type (ha)				Total
	Number	Native Forests	Plantations	Bushes	Grasslands	
Argentina	12.029	631.220	14.981	854.627	427.435	1.928.263
Bolivia	4.122	550			753	1.303
Brasil	189,126*					
Colombia	906	1.395	842		23.483	25.720
Chile	5.897	21.739	13.278	11.838	15.295	62.150
Ecuador	99	2.427	183		394	3.004
Paraguay	1.200	N/A	N/A	N/A	N/A	18.000
Peru	2.500	N/A	N/A	N/A	N/A	50.000
Uruguay	330	60			804	864
Venezuela	1.546	2.255	2.255	13.530	27.059	45.099
Total	28.629	659.646	31.539	879.995	495.223	2.134.403
Average	3.181	94.235	6.308	293.332	70.746	237.156

Regional Reports;Velez;PNUMA,FAO

El Niño causes big events: Amazon Basin; Brasil: Roraima (98) 4,0 mill has; Bolivia, Santa Cruz & El Beni (99) 12 mill ; Perú:Piura (98-99)106.000; Lambayeque 32.000;Cusco-Machu-Pichu (98), Madre de Dios. Chile: La Rufina (98) 26.000 has

Ecuador: El Oro (86) 4.000; Loja (86) 1.200, Pichincha,Galápagos (84)15.000; Chile: Ralco/Malleco/Lolca (02) 22.800; Bolivia Tarija (02) 15.000 ;Argentina: Mendoza-La Pampa (01)1.5 mill. has



South American Wildfire seasons

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Argentina												
Bolivia												
Brasil												
Colombia												
Chile												
Ecuador												
Paraguay												
Peru												
Uruguay												
Venezuela												

Fire Causes: > 95% Antropic. Mainly estimated.

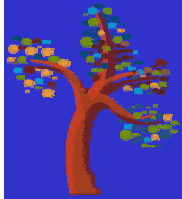
Cleaning burns: Arg (49%), Bra (32%), Ven (19%), Bo, Ecu, Par;

Grasslands enhancement: Uru "Chaqueo" (Cut/Chop/burn): Bo, Co, Ecu, Pe.

Intentional/arsons: Bra (41%); Ven (33%); Chi (27%); Arg (17%);

People in transit: Chi (28%); Pe (11%)

Unknown: Arg (23 %); Ven (20 %); Chi (14 %); Ecu (12 %).



South American Projects & Initiatives

- Initiative “FireFight prevenir antes que curar”: ITTO/IUCN/ WWF- Integrated Fire Management: *Bolivia, Ecuador and Perú*
- *Iberoamerican Fire Courses AECI/MMA-.Araucaria Progr. Spain*
- BOLFOR / Superintend. Forestal/ CAF: SATIF-NOAA-AVHRR
- SENADECI/OFDA/USAID-Trainning- Crews ASEO
- UNALM-Perú /INPE-Brasil / WHRC-USA “ *Burnings Detecction* ”
- *Univ.Concep- Chile/Corma/Achs/Conaf/Fondef-Ergonometry*
- Strengthen, Fire Prevation & Control, Colombia Gov. - *BID*
- N’tl Trainning Progm. /Educ. Gov. ACCI-Colombia/ *AECI-Spain*
- GOFC/GOLD-Fire-CEOS-GFMC-SDRWG Monitoring/mapping
- CIEFAP-GTZ-Germany-PSJB-UNC *Patagonia Argentina*
- Fire Prevention & Control *PROARCO* World- Bank
- Fire Monitoring- Risk Evaluation INPE, Univ. Maryland-NASA-NOAA/NGDC-IBAMA.
- *INPE-CPTEC-IBAMA-Brasil* Monit.-predicc. *Bol-Perú-Parag.*



Fire Organizations in South America

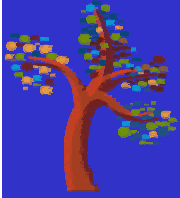
- Appellants problems of changes of competitions from Forest Departments to Environmental Departments
- Lack of clear Public Policies Affecting Forest Fires
- Structures and diverse Models in continuous change:
 - Identified Organization:
 - *PNMF- Argentina / Pgr. M.del Fuego - CONAF- Chile PREVEFOGO- IBAMA- Brasil*
 - Organization staggered with different organisations:
 - Agriculture/Forestry Departments/Local Governments (Prov./Dept./Counties) Civil Volunteers Org./ City Fire Dept./ NOG´S/ ARMY/Red Cross: Uru-Ecu-Per-Bol-Col.



South American Cooperation Networks

- Colombian network of Immediate Response
- Forest Rural Andean Development Project- Ecuador
FAO/ Environment Department
- CONAF/ Fire Management Technical Council - Chile
- PREVEFOGO-IBAMA-Brasil
- Latin-American Teledetección's and Wildfires
Management net (*RedLaTIF*)
- INPE-CPTEC-IBAMA-Brasil-Bolivia-Perú-Paraguay
Wildfire & Burns Monitoring - Prediction.
- Forest Fires South American Network

**Future International Cooperation in
South America**



! MUCHAS GRACIAS !

(THANK YOU)