

Chapter 3

Global overview

A total of 124 countries and areas were identified as containing one or more true mangrove species (Tomlinson, 1986; Saenger, Hegerl and Davie, 1983) (see Annex 3). Table 2 presents an overview of the status and trends in extent of mangrove area at the regional level. The reference year given in the table for the most recent reliable estimate is the area-weighted average year. A list of the most recent reliable national/area estimates for each country or territory is presented in Table 3.

The considerable collection of quantitative and qualitative information yielded some 2 900 national and subnational data sets, of which just over 1 100 were national estimates. After elimination of duplicates, about 900 estimates remained. The period of time covered by the present assessment is very broad, with the earliest estimates dating back to 1888 for Australia, 1918 for the Philippines and 1921 for Madagascar. For some countries (e.g. Australia, Japan, Malaysia and Wallis and Futuna Islands), the most recent estimates date from 2005. Quantitative data on current and past extent of mangroves were not available for the British Indian Ocean Territory, Christmas Island, French Polynesia, Maldives, Marshall Islands, Sao Tome and Principe and Tokelau. However the extent of mangroves estimated to be present in these seven countries and areas is low and, even though very relevant locally, would not significantly influence the world total.

According to trend analyses of the available data, some 15.2 million hectares of mangroves are estimated to exist worldwide as of 2005, down from 18.8 million hectares in 1980. The most extensive mangrove area is found in Asia, followed by Africa and North and Central America (Table 3 and Figure 2). Five countries (Indonesia, Australia, Brazil, Nigeria and Mexico) together account for 48 percent of the total global area, and 65 percent of the total mangrove area is found in just ten countries (Figure 3). The remaining 35 percent is spread over 114 countries and areas, of which 60 have less than 10 000 ha of mangroves each.

Asia, which according to FAO (2006a) is the region with the lowest forest cover in terms of percentage of land area, has the largest extent of mangroves (approximately 6 million hectares), and five of the ten countries with the largest extent of mangroves worldwide are found in this region.

Human pressure on coastal ecosystems is often high, with land competition for aquaculture, agriculture, infrastructure and tourism. The consequent conversion of mangrove areas to other uses over the past decades has been alarming. However,

TABLE 2
Current and past extent of mangroves by region (1980–2005)

Region	Most recent reliable estimate		1980 1 000 ha	1990 1 000 ha	Annual change 1980–1990		2000 1 000 ha	Annual change 1990–2000		2005 1 000 ha	Annual change 2000–2005	
	1 000 ha	Ref. year			1 000 ha	%		1 000 ha	%		1 000 ha	%
Africa	3 243	1997	3 670	3 428	–24	–0.68	3 218	–21	–0.63	3 160	–12	–0.36
Asia	6 048	2002	7 769	6 741	–103	–1.41	6 163	–58	–0.89	5 858	–61	–1.01
North and Central America	2 358	2000	2 951	2 592	–36	–1.29	2 352	–24	–0.97	2 263	–18	–0.77
Oceania	2 019	2003	2 181	2 090	–9	–0.42	2 012	–8	–0.38	1 972	–8	–0.39
South America	2 038	1992	2 222	2 073	–15	–0.69	1 996	–8	–0.38	1 978	–4	–0.18
World	15 705	2000	18 794	16 925	–187	–1.04	15 740	–118	–0.72	15 231	–102	–0.66

TABLE 3
Most recent reliable mangrove area estimate by country/area

Country/area	ha	Year	Country/area	ha	Year
Angola	33 600	2000	Pakistan	158 000	2001
Benin	1 700	1989	Philippines	247 362	2003
British Indian Ocean Territory	n.a.	n.a.	Qatar	500	1992
Cameroon	251 545	2000	Saudi Arabia	20 400	1985
Comoros	117	2002	Singapore	500	1990
Congo	8 000	2003	Sri Lanka	9 530	1996
Côte d'Ivoire	9 940	2000	Thailand	244 085	2000
Dem. Rep. of the Congo	19 600	2000	Timor-Leste	1 802	2000
Djibouti	1 000	1985	United Arab Emirates	4 000	1999
Egypt	512	2002	Viet Nam	157 500	2000
Equatorial Guinea	25 700	1995	Yemen	927	1993
Eritrea	6 400	1997	Total Asia	6 047 798	2002
Gabon	152 940	2000	American Samoa	52	2003
Gambia	58 100	2000	Australia	1 451 411	2005
Ghana	13 729	2000	Christmas Island	n.a.	n.a.
Guinea	276 342	1997	Fiji	42 464	1991
Guinea-Bissau	248 400	1990	French Polynesia	n.a.	n.a.
Kenya	52 980	1982	Guam	70	1993
Liberia	9 244	2000	Kiribati	258	1995
Madagascar	303 814	2004	Marshall Islands	n.a.	n.a.
Mauritania	104	1993	Micronesia (Fed. States of)	8 564	1983
Mauritius	120	2004	Nauru	2	1991
Mayotte	668	1989	New Caledonia	17 140	2003
Mozambique	392 749	1997	New Zealand	26 032	2001
Nigeria	997 700	1995	Niue	3 000	1981
Sao Tome and Principe	n.a.	n.a.	Northern Mariana Islands	7	1976
Senegal	127 702	2000	Palau	4 708	1985
Seychelles	2 900	1960	Papua New Guinea	410 000	2000
Sierra Leone	105 300	2000	Samoa	370	1999
Somalia	10 000	1975	Solomon Islands	50 572	1993
South Africa	3 054	1999	Tokelau	n.a.	n.a.
Sudan	500	1995	Tonga	1 305	1997
Togo	1 094	2000	Tuvalu	40	1993
United Rep. of Tanzania	127 200	2000	Vanuatu	2 519	1993
Total Africa	3 242 754	1997	Wallis and Futuna Islands	25	2005
Bahrain	100	1992	Total Oceania	2 018 537	2003
Bangladesh	476 215	1995	Anguilla	90	1991
Brunei Darussalam	18 418	1996	Antigua and Barbuda	1 175	1991
Cambodia	72 835	1997	Aruba	420	1986
China	22 480	2001	Bahamas	141 957	1991
India	446 100	2003	Barbados	4	2004
Indonesia	3 062 300	2003	Belize	78 511	1990
Iran, Islamic Rep. of	19 234	1997	Bermuda	16	1992
Japan	800	2005	British Virgin Islands	587	2001
Kuwait	5	2004	Cayman Islands	7 830	1998
Malaysia	564 971	2005	Costa Rica	41 840	2000
Maldives	n.a.	n.a.	Cuba	545 805	2003
Myanmar	518 646	1999	Dominica	10	1991
Oman	1 088	1995			

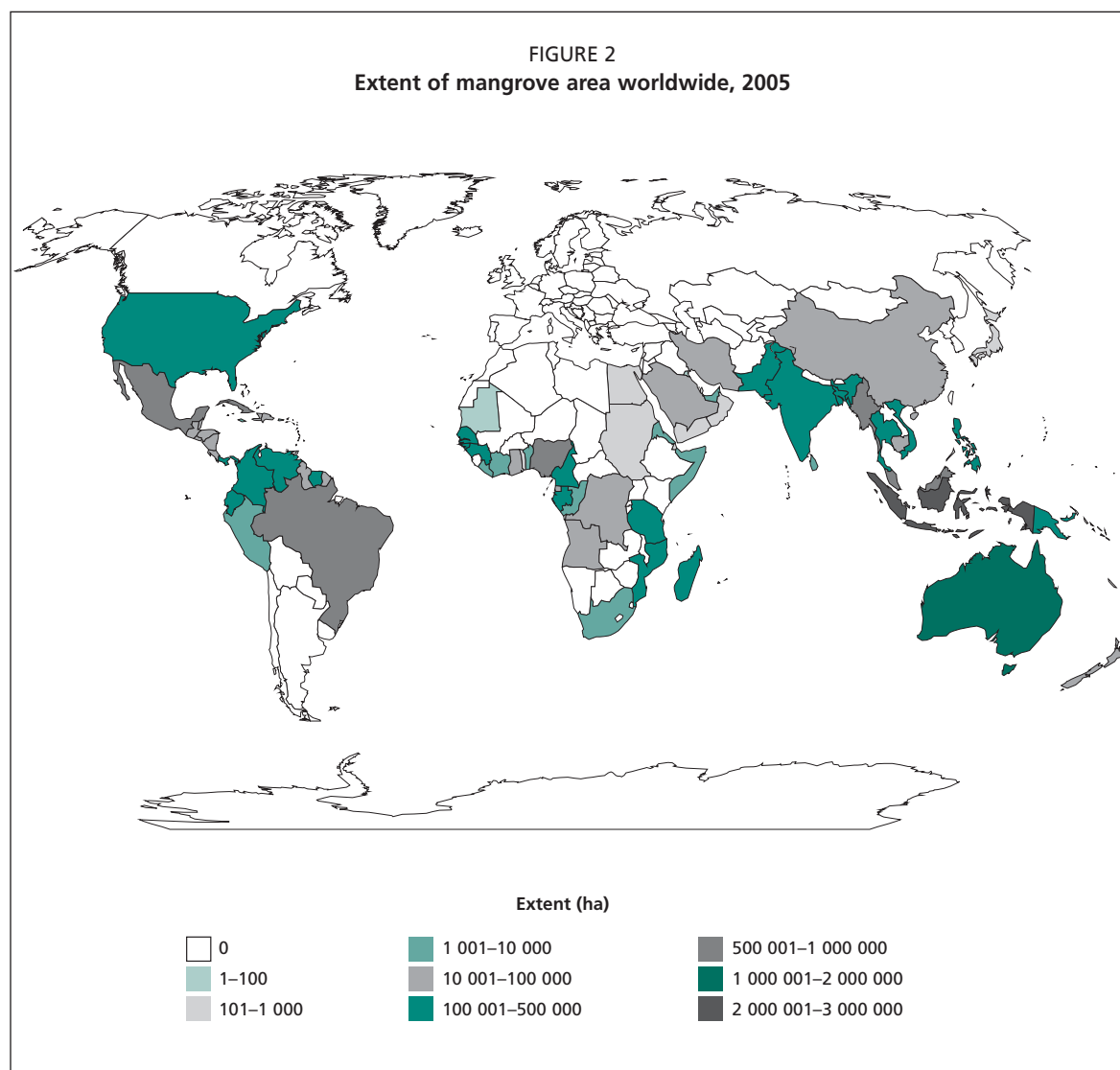
TABLE 3 (continued)

Most recent reliable mangrove area estimate by country/area

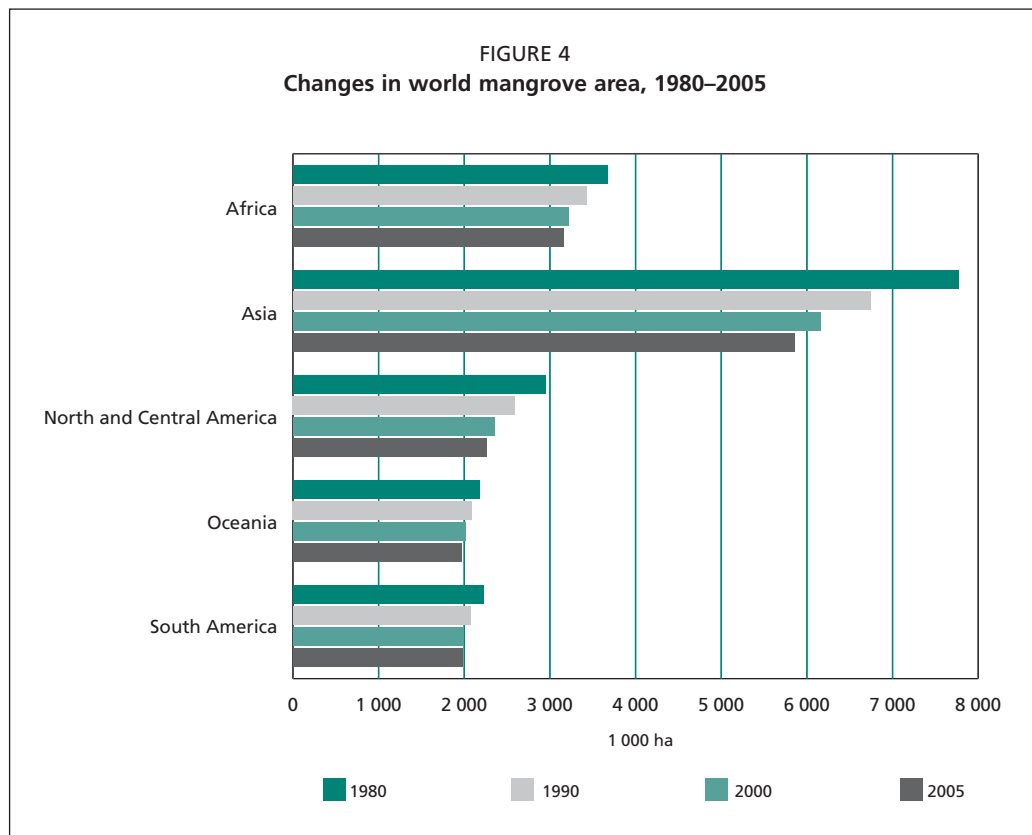
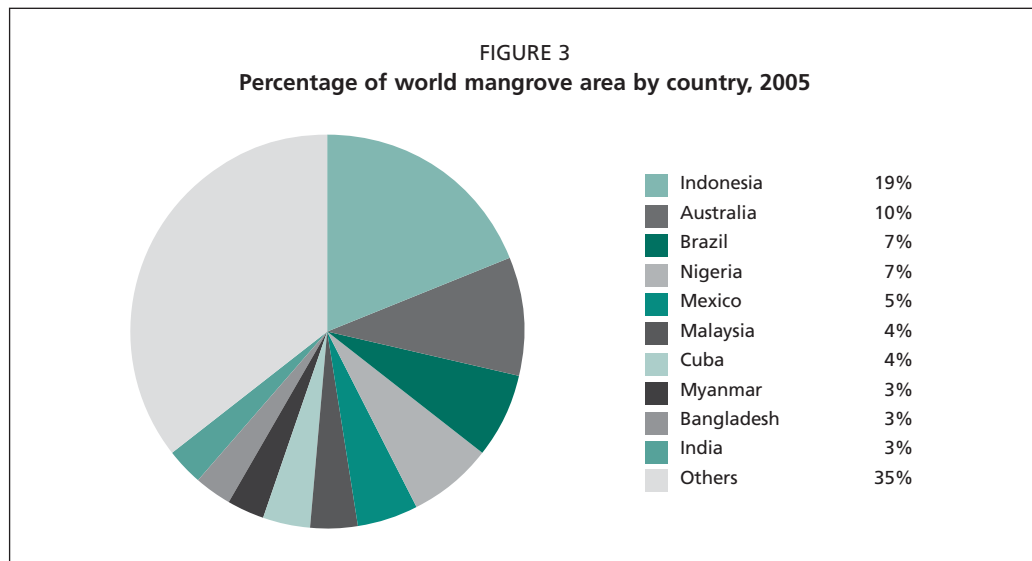
Country/area	ha	Year	Country/area	ha	Year
Dominican Republic	21 215	1998	Saint Vincent and the Grenadines	51	1991
El Salvador	28 000	2004	Trinidad and Tobago	7 150	1991
Grenada	255	1992	Turks and Caicos Islands	23 600	1988
Guadeloupe	2 950	1997	United States	197 648	2001
Guatemala	17 727	1999	United States Virgin Islands	216	1999
Haiti	15 000	1988	Total North and Central America	2 358 105	2000
Honduras	78 668	2000			
Jamaica	9 731	1997	Brazil	1 012 376	1991
Martinique	1 840	1998	Colombia	371 250	1997
Mexico	882 032	2002	Ecuador	149 556	1999
Montserrat	5	1991	French Guiana	55 000	1980
Netherlands Antilles	1 138	1980	Guyana	80 432	1992
Nicaragua	69 050	1998	Peru	4 550	1995
Panama	174 435	2000	Suriname	114 600	1998
Puerto Rico	8 870	2000	Venezuela (Bolivarian Rep. of)	250 000	1986
Saint Kitts and Nevis	79	1991	Total South America	2 037 764	1992
Saint Lucia	200	2002			

Note: n.a. = not available.

FIGURE 2
Extent of mangrove area worldwide, 2005



although mangroves still face major threats, the rate of loss has recently been decreasing – from some 187 000 ha lost annually in the 1980s (–1.04 percent per year) to 102 000 ha annually (–0.66 percent per year) during the 2000–2005 period. The figures suggest that during the past 25 years about 3.6 million hectares have been lost, corresponding to some 20 percent of the global mangrove area in 1980. At the regional level, Asia suffered the largest net loss: more than 1.9 million hectares since 1980, mainly due to changes in land use from 1980 to 1990. North and Central America and Africa also contributed significantly to the decrease in mangrove area at the global level, with losses of about 690 000 and 510 000 ha respectively over the last 25 years. On a positive note, analysis of the trend in mangrove area changes in the last five years (2000–2005), shows a reduction of the rate of loss in all regions (Figure 4).



Mangroves often offer a source of wood products, providing subsistence for local populations. Wood removal, however, is rarely the main cause of mangrove loss. The major cause of clearings and losses over time is competition for land – for urban development, tourism, agriculture or shrimp-pond construction. More specifically, the relatively large mangrove negative change rates of the 1980s in Asia, the Caribbean and Latin America have been caused primarily by large-scale conversion of these areas for aquaculture and tourism infrastructure. Most countries have now banned the clearing of mangrove areas for aquaculture and require environmental impact assessments prior to large-scale conversion of these areas to other uses.

At the country level, Indonesia, Mexico, Pakistan, Papua New Guinea and Panama recorded the largest losses of mangroves during the 1980s. A total of some 1 million hectares were lost in these five countries – a land area comparable to Jamaica. In the 1990s Pakistan and Panama succeeded in reducing their rate of mangrove loss. Conversely, Viet Nam, Malaysia and Madagascar suffered increased clearing and moved into the top five countries with major area losses in the 1990s and/or 2000–2005. Even though efforts are under way to decrease mangrove loss, some 500 000 ha have still been lost worldwide within the period 2000–2005.

In relative terms, countries with high negative change rates include Singapore, Barbados, Pakistan and the Republic of the Congo in the 1980s; Barbados, Oman, Samoa and Timor-Leste in the 1990s and Barbados, Liberia, Antigua and Barbuda and Benin from 2000 to 2005.

On a positive note, a number of countries have registered an increase in mangrove area over time, including Bangladesh. Here, the Sundarbans Reserved Forest (the Bangladeshi section of the Sundarbans) – part of the largest mangrove area in the world – is well protected, and no major changes have occurred during the last few decades. In addition, successful efforts in coastal afforestation have contributed to an increase in the extent of mangrove area despite some losses outside the reserve. A long tradition of plantation programmes is found in other countries as well and has led to an increase in the extent of mangrove area. The recolonization and natural regeneration properties of these forests also help to increase their extent. In Ecuador, for example, the abandoning of ponds and structures for shrimp and salt production resulted in a recolonization of various sites. It should, however, be noted that in a few cases, a slight positive or negative trend may have been caused by changes in methodology or definitions or, as in the United Arab Emirates, by the discovery of new mangrove areas not included in previous assessments.

More than 20 countries are reported as having had no significant change in mangrove area over time. In some of these countries and areas, this may be caused by the limited quantitative information available at the time the study was prepared. In a few of them – Saudi Arabia and the Sudan for example – although the extent did not appear to have changed significantly over the last decades, the quality of the stands may have severely deteriorated, due primarily to camel grazing, pollution and/or oil spills.

