



# 3.4

## Deforestation and biodiversity

	Forest area		Average annual deforestation <sup>a</sup>		Animal species		Higher plants <sup>b</sup>		GEF benefits index for biodiversity	Nationally protected areas		Marine protected areas	
	thousand sq. km		%		Total known species	Threatened species	Total known species	Threatened species		0–100 (no biodiversity to maximum biodiversity)	thousand sq. km	% of total land area	thousand sq. km
	1990	2005	1990–2000	2000–05	2004	2008	2004	2008	2008	2006 <sup>c</sup>	2006 <sup>c</sup>	2004	2004
Afghanistan	13	9	2.5	3.1	578	30	4,000	2	3.4	2.2	0.3	..	..
Albania	8	8	0.3	-0.6	376	45	3,031	0	0.2	0.2	0.7	0.3	1.0
Algeria	18	23	-1.8	-1.2	472	72	3,164	3	2.9	118.8	5.0	0.9	0.0
Angola	610	591	0.2	0.2	1,226	62	5,185	26	8.3	125.5	10.1	29.1	2.3
Argentina	353	330	0.4	0.4	1,413	152	9,372	44	17.7	173.6	6.3	7.8	0.3
Armenia	3	3	1.0	1.5	380	35	3,553	1	0.2	2.4	8.7	..	..
Australia	1,679	1,637	0.2	0.1	1,227	568	15,638	55	87.7	734.1	9.6	680.8	8.8
Austria	38	39	-0.2	-0.1	513	62	3,100	4	0.3	23.5	28.5	..	..
Azerbaijan	9	9	0.0	0.0	446	38	4,300	0	0.8	4.0	4.8	1.2	1.4
Bangladesh	9	9	0.0	0.3	735	89	5,000	12	1.4	0.9	0.7	0.3	0.2
Belarus	75	79	-0.5	-0.1	297	17	2,100	..	0.0	10.8	5.2	..	..
Belgium	8 <sup>d</sup>	7	..	..	519	29	1,550	1	0.0	1.0	3.2	0.0	0.0
Benin	33	24	2.1	2.5	644	34	2,500	14	0.2	26.1	23.6	..	..
Bolivia	628	587	0.4	0.5	1,775	80	17,367	71	12.5	218.5	20.2	..	..
Bosnia and Herzegovina	22	22	0.1	0.0	390	55	..	1	0.4	0.2	0.5	..	..
Botswana	137	119	0.9	1.0	739	18	2,151	0	1.4	174.4	30.8	..	..
Brazil	5,200	4,777	0.5	0.6	2,290	343	56,215	382	100.0	1,515.2	17.9	47.4	0.6
Bulgaria	33	36	-0.1	-1.4	485	47	3,572	0	0.8	11.0	10.1	0.0	0.0
Burkina Faso	72	68	0.3	0.3	581	13	1,100	2	0.3	38.2	14.0	..	..
Burundi	3	2	3.7	5.2	713	48	2,500	2	0.3	1.5	6.0	..	..
Cambodia	129	104	1.1	2.0	648	82	..	31	3.5	41.5	23.5	1.9	1.1
Cameroon	245	212	0.9	1.0	1,258	157	8,260	355	12.5	39.9	8.6	3.9	0.8
Canada	3,101	3,101	0.0	0.0	683	77	3,270	2	21.5	473.2	5.2	362.7	3.6
Central African Republic	232	228	0.1	0.1	850	17	3,602	15	1.5	94.7	15.2	..	..
Chad	131	119	0.6	0.7	635	21	1,600	2	2.2	114.9	9.1	..	..
Chile	153	161	-0.4	-0.4	604	95	5,284	40	15.3	27.8	3.7	114.5	15.1
China	1,571	1,973	-1.2	-2.2	1,801	351	32,200	446	66.6	1,437.8	15.4	16.0	0.2
Hong Kong, China	..	..	..	..	363	37	..	6	0.0	0.3	24.7	0.3	26.5
Colombia	614	607	0.1	0.1	2,288	382	51,220	223	51.5	282.7	25.5	8.1	0.7
Congo, Dem. Rep.	1,405	1,336	0.4	0.2	1,578	126	11,007	65	19.9	196.1	8.6	..	..
Congo, Rep.	227	225	0.1	0.1	763	37	6,000	35	3.6	48.7	14.3	..	..
Costa Rica	26	24	0.8	-0.1	1,070	131	12,119	111	9.7	11.2	21.8	4.8	9.4
Côte d'Ivoire	102	104	-0.1	-0.1	931	73	3,660	105	3.4	38.9	12.2	0.3	0.1
Croatia	21	21	0.0	-0.1	461	78	4,288	1	0.6	3.1	5.6	2.5	4.4
Cuba	21	27	-1.7	-2.2	423	115	6,522	163	12.5	1.5	1.4	31.7	28.6
Czech Republic	26	26	0.0	-0.1	474	39	1,900	4	0.1	12.5	16.1	..	..
Denmark	4	5	-0.9	-0.6	508	28	1,450	3	0.2	2.5	5.8	5.1	11.8
Dominican Republic	14	14	0.0	0.0	260	81	5,657	30	6.0	11.8	24.4	8.6	17.6
Ecuador	138	109	1.5	1.7	1,856	340	19,362	1,839	29.3	62.6	22.6	141.0	49.7
Egypt, Arab Rep.	0 <sup>e</sup>	1	-3.0	-2.6	599	59	2,076	2	2.9	53.2	5.3	76.7	7.7
El Salvador	4	3	1.5	1.7	571	29	2,911	26	0.9	0.2	1.0	0.1	0.4
Eritrea	16	16	0.2	0.3	607	38	..	3	0.8	5.0	5.0	..	..
Estonia	22	23	-0.3	-0.4	334	14	1,630	0	0.1	20.0	47.1	..	..
Ethiopia	147	130	0.7	1.1	1,127	86	6,603	22	8.4	186.2	18.6	..	..
Finland	222	225	-0.1	0.0	501	19	1,102	1	0.2	29.5	9.7	1.1	0.3
France	145	156	-0.5	-0.3	665	117	4,630	8	5.3	55.6	10.1	0.5	0.1
Gabon	219	218	0.0	0.0	798	43	6,651	108	3.0	34.9	13.5	1.0	0.4
Gambia, The	4	5	-0.4	-0.4	668	31	974	4	0.1	0.3	3.5	0.2	1.9
Georgia	28	28	0.0	0.0	366	46	4,350	0	0.6	2.7	3.9	0.0	0.1
Germany	107	111	-0.3	0.0	613	59	2,682	12	0.6	75.8	21.7	9.1	2.6
Ghana	74	55	2.0	2.0	978	56	3,725	117	1.9	36.3	15.9	..	..
Greece	33	38	-0.9	-0.8	530	95	4,992	11	2.8	4.0	3.1	2.5	1.9
Guatemala	47	39	1.2	1.3	877	133	8,681	83	8.0	35.4	32.6	0.1	0.1
Guinea	74	67	0.7	0.5	855	61	3,000	22	2.3	15.0	6.1	..	..
Guinea-Bissau	22	21	0.4	0.5	560	29	1,000	4	0.6	2.9	10.2	..	..
Haiti	1	1	0.6	0.7	312	91	5,242	29	5.2	0.1	0.3	..	..

# Deforestation and biodiversity

# 3.4

	Forest area		Average annual deforestation <sup>a</sup>		Animal species		Higher plants <sup>b</sup>		GEF benefits index for biodiversity 0–100 (no biodiversity to maximum biodiversity)	Nationally protected areas		Marine protected areas	
	thousand sq. km		%		Total known species	Threatened species	Total known species	Threatened species		thousand sq. km	% of total land area	thousand sq. km	% of surface area
	1990	2005	1990–2000	2000–05	2004	2008	2004	2008	2006 <sup>c</sup>	2006 <sup>c</sup>	2004	2004	
Honduras	74	46	3.0	3.1	900	102	5,680	110	7.2	21.9	19.6	1.9	1.7
Hungary	18	20	-0.6	-0.7	455	55	2,214	1	0.2	5.2	5.8	..	..
India	639	677	-0.6	0.0	1,602	313	18,664	246	39.9	151.7	5.1	16.1	0.5
Indonesia	1,166	885	1.7	2.0	2,271	464	29,375	386	81.0	203.1	11.2	130.1	6.8
Iran, Islamic Rep.	111	111	0.0	0.0	656	75	8,000	1	7.3	103.9	6.4	6.2	0.4
Iraq	8	8	-0.2	-0.1	498	40	..	0	1.6	0.0	0.0	..	..
Ireland	4	7	-3.3	-1.9	471	15	950	1	0.6	0.8	1.1	0.0	0.0
Israel	2	2	-0.6	-0.8	649	79	2,317	0	0.8	3.4	15.6	0.1	0.6
Italy	84	100	-1.2	-1.1	610	119	5,599	19	3.8	19.4	6.6	1.5	0.5
Jamaica	3	3	0.1	0.1	333	61	3,308	209	4.4	1.6	15.0	8.2	74.5
Japan	250	249	0.0	0.0	763	190	5,565	12	36.0	34.5	9.5	10.6	2.8
Jordan	1	1	0.0	0.0	490	43	2,100	0	0.4	9.3	10.6	0.0	0.0
Kazakhstan	34	33	0.1	0.2	642	55	6,000	16	5.1	77.4	2.9	0.5	0.0
Kenya	37	35	0.3	0.3	1,510	172	6,506	103	8.8	69.1	12.1	3.1	0.5
Korea, Dem. Rep.	82	62	1.8	1.9	474	44	2,898	3	0.7	3.2	2.6	..	..
Korea, Rep.	64	63	0.1	0.1	512	54	2,898	0	1.7	3.5	3.5	3.5	3.5
Kuwait	0 <sup>e</sup>	0 <sup>e</sup>	-3.4	-2.7	381	23	234	..	0.1	0.0	0.0	0.3	1.5
Kyrgyz Republic	8	9	-0.2	-0.3	265	22	4,500	14	1.1	6.2	3.2	..	..
Lao PDR	173	161	0.5	0.5	919	77	8,286	21	5.0	37.5	16.3	..	..
Latvia	28	29	-0.3	-0.4	393	23	1,153	0	0.0	10.4	16.7	0.2	0.2
Lebanon	1	1	-0.8	-0.8	447	38	3,000	0	0.2	0.0	0.4	0.0	0.0
Lesotho	0	0	-3.4	-2.7	370	11	1,591	1	0.3	0.1	0.2	..	..
Liberia	41	32	1.6	1.8	759	60	2,200	46	2.6	15.2	15.8	0.6	0.5
Libya	2	2	0.0	0.0	413	31	1,825	1	1.6	1.2	0.1	0.5	0.0
Lithuania	20	21	-0.3	-0.8	298	20	1,796	..	0.0	3.6	5.7	0.5	0.8
Macedonia, FYR	9	9	0.0	0.0	380	34	3,500	0	0.2	1.8	7.1	..	..
Madagascar	137	128	0.5	0.3	427	262	9,505	281	29.2	15.2	2.6	0.2	0.0
Malawi	39	34	0.9	0.9	865	141	3,765	14	3.5	18.4	19.5	..	..
Malaysia	224	209	0.4	0.7	1,083	225	15,500	686	13.9	59.7	18.2	5.0	1.5
Mali	141	126	0.7	0.8	758	21	1,741	6	1.5	26.0	2.1	..	..
Mauritania	4	3	2.7	3.4	615	44	1,100	..	1.3	2.5	0.2	15.0	1.5
Mauritius	0 <sup>e</sup>	0 <sup>e</sup>	0.3	0.5	151	65	750	88	3.3	0.1	3.3	0.1	4.4
Mexico	690	642	0.5	0.4	1,570	579	26,071	261	68.7	102.5	5.3	82.1	4.2
Moldova	3	3	-0.2	-0.2	253	28	1,752	0	0.0	0.5	1.4	..	..
Mongolia	115	103	0.7	0.8	527	38	2,823	0	4.2	217.9	13.9	..	..
Morocco	43	44	-0.1	-0.2	559	76	3,675	2	3.5	4.7	1.1	0.5	0.1
Mozambique	200	193	0.3	0.3	913	93	5,692	46	7.2	45.3	5.8	22.5	2.8
Myanmar	392	322	1.3	1.4	1,335	118	7,000	38	10.0	35.5	5.4	0.2	0.0
Namibia	88	77	0.9	0.9	811	55	3,174	24	5.2	42.8	5.2	74.0	9.0
Nepal	48	36	2.1	1.4	477	72	6,973	7	2.1	22.8	16.0	..	..
Netherlands	3	4	-0.4	-0.3	539	26	1,221	0	0.2	4.3	12.7	0.8	1.9
New Zealand	77	83	-0.6	-0.2	424	124	2,382	21	20.2	64.7	24.2	22.7	8.4
Nicaragua	65	52	1.6	1.3	813	59	7,590	39	3.3	21.3	17.6	1.3	1.0
Niger	19	13	3.7	1.0	616	20	1,460	2	0.9	84.1	6.6	..	..
Nigeria	172	111	2.7	3.3	1,189	79	4,715	171	6.0	56.5	6.2	..	..
Norway	91	94	-0.2	-0.2	525	32	1,715	2	1.3	15.5	5.1	1.3	0.4
Oman	0 <sup>e</sup>	0 <sup>e</sup>	0.0	0.0	557	50	1,204	6	3.7	0.2	0.1	29.6	9.6
Pakistan	25	19	1.8	2.1	820	78	4,950	2	4.9	65.3	8.5	2.2	0.3
Panama	44	43	0.2	0.1	1,145	121	9,915	194	10.9	7.6	10.2	10.0	13.3
Papua New Guinea	315	294	0.5	0.5	980	158	11,544	142	25.4	36.2	8.0	3.5	0.8
Paraguay	212	185	0.9	0.9	864	39	7,851	10	2.8	23.4	5.9	..	..
Peru	702	687	0.1	0.1	2,222	238	17,144	275	33.4	175.9	13.7	3.4	0.3
Philippines	106	72	2.8	2.1	812	253	8,931	216	32.3	30.0	10.1	16.6	5.5
Poland	89	92	-0.2	-0.3	534	38	2,450	4	0.5	75.4	24.6	0.7	0.2
Portugal	31	38	-1.5	-1.1	606	147	5,050	16	5.5	4.6	5.0	2.0	2.2
Puerto Rico	4	4	-0.1	0.0	348	47	2,493	53	4.0	0.3	3.3	1.7	19.1

## 3.4

## Deforestation and biodiversity

	Forest area		Average annual deforestation <sup>a</sup>		Animal species		Higher plants <sup>b</sup>		GEF benefits index for biodiversity	Nationally protected areas		Marine protected areas	
	thousand sq. km		%		Total known species	Threatened species	Total known species	Threatened species	0–100 (no biodiversity to maximum biodiversity)	thousand sq. km	% of total land area	thousand sq. km	% of surface area
	1990	2005	1990–2000	2000–05	2004	2008	2004	2008	2008	2006 <sup>c</sup>	2006 <sup>c</sup>	2004	2004
Romania	64	64	0.0	0.0	466	64	3,400	1	0.7	5.2	2.2	6.1	2.6
Russian Federation	8,090	8,088	0.0	0.0	941	153	11,400	7	34.1	1,113.4	6.8	301.8	1.8
Rwanda	3	5	-0.8	-6.9	871	49	2,288	3	0.9	2.0	8.1	..	..
Saudi Arabia	27	27	0.0	0.0	527	45	2,028	3	3.2	818.3	38.1	5.2	0.3
Senegal	93	87	0.5	0.5	803	55	2,086	7	1.0	21.6	11.2	0.9	0.4
Serbia	26 <sup>f</sup>	27 <sup>f</sup>	-0.3 <sup>f</sup>	-0.3 <sup>f</sup>	477 <sup>f</sup>	42	4,082 <sup>f</sup>	1	0.2 <sup>f</sup>	3.3 <sup>f</sup>	3.2 <sup>f</sup>	0.1 <sup>f</sup>	0.1 <sup>f</sup>
Singapore	0 <sup>e</sup>	0 <sup>e</sup>	0.0	0.0	473	44	2,282	54	0.1	0.0	4.2	0.0	0.1
Slovak Republic	19	19	0.0	-0.1	419	44	3,124	2	0.1	9.6	20.0	..	..
Slovenia	12	13	-0.3	-0.4	437	80	3,200	..	0.2	1.3	6.7	0.0	0.0
Somalia	83	71	1.0	1.0	824	55	3,028	17	6.1	1.9	0.3	3.3	0.5
South Africa	92	92	0.0	0.0	1,149	323	23,420	74	20.7	73.7	6.1	3.4	0.3
Spain	135	179	-2.0	-1.7	647	170	5,050	49	6.8	41.4	8.3	1.8	0.4
Sri Lanka	24	19	1.2	1.5	504	177	3,314	280	7.9	11.3	17.5	2.3	3.5
Sudan	764	675	0.8	0.8	1,254	47	3,137	17	5.1	114.1	4.8	0.3	0.0
Swaziland	5	5	-0.9	-0.9	614	16	2,715	11	0.1	0.5	3.1	..	..
Sweden	274	275	0.0	0.0	542	30	1,750	3	0.3	42.4	10.3	4.3	1.0
Switzerland	12	12	-0.4	-0.4	475	44	3,030	3	0.2	11.8	29.5	..	..
Syrian Arab Republic	4	5	-1.5	-1.3	432	59	3,000	0	0.9	1.2	0.7	..	..
Tajikistan	4	4	0.0	0.0	427	27	5,000	14	0.7	19.6	14.0	..	..
Tanzania	414	353	1.0	1.1	1,431	299	10,008	240	14.8	342.7	38.7	2.3	0.2
Thailand	160	145	0.7	0.4	1,271	157	11,625	86	8.0	101.7	19.9	5.8	1.1
Timor-Leste	10	8	1.2	1.3	..	..	..	0	0.6	0.9	6.3	..	..
Togo	7	4	3.4	4.5	740	33	3,085	10	0.3	6.0	11.1	..	..
Trinidad and Tobago	2	2	0.3	0.2	551	38	2,259	1	2.2	0.2	4.7	0.1	1.3
Tunisia	6	11	-4.1	-1.9	438	52	2,196	0	0.5	2.4	1.5	0.2	0.1
Turkey	97	102	-0.4	-0.2	581	121	8,650	3	6.2	12.7	1.6	4.5	0.6
Turkmenistan	41	41	0.0	0.0	421	44	..	3	1.8	12.6	2.7	..	..
Uganda	49	36	1.9	2.2	1,375	131	4,900	38	2.8	62.9	31.9	..	..
Ukraine	93	96	-0.2	-0.1	445	58	5,100	1	0.5	19.4	3.3	3.1	0.5
United Arab Emirates	2	3	-2.4	-0.1	298	27	..	..	0.2	0.2	0.2	..	..
United Kingdom	26	28	-0.7	-0.4	660	38	1,623	14	3.5	47.5	19.6	22.5	9.2
United States	2,986	3,031	-0.1	-0.1	1,356	937	19,473	244	94.2	1,379.2	15.1	909.5	9.4
Uruguay	9	15	-4.5	-1.3	532	66	2,278	1	1.2	0.6	0.3	0.1	0.0
Uzbekistan	31	33	-0.4	-0.5	434	33	4,800	15	1.1	8.7	2.0	..	..
Venezuela, RB	520	477	0.6	0.6	1,745	166	21,073	69	25.3	638.1	72.3	21.3	2.3
Vietnam	94	129	-2.3	-2.0	1,116	152	10,500	147	12.1	16.0	5.2	0.7	0.2
West Bank and Gaza	..	0 <sup>e</sup>	..	0.0	..	..	..	0	0.0	..	..	..	..
Yemen, Rep.	5	5	0.0	0.0	459	47	1,650	159	3.2	0.0	0.0	..	..
Zambia	491	425	0.9	1.0	1,025	38	4,747	8	3.8	300.5	40.4	..	..
Zimbabwe	222	175	1.5	1.7	883	35	4,440	17	1.9	57.2	14.8	..	..
<b>World</b>	<b>40,457 s</b>	<b>39,426 s</b>	<b>0.2 w</b>	<b>0.2 w</b>						<b>14,042.4 s</b>	<b>11.0 w</b>	<b>4,348.8 s</b>	<b>3.8 w</b>
<b>Low income</b>	5,697	5,251	0.5	0.7						2,179.4	10.8	57.5	..
<b>Middle income</b>	25,266	24,520	0.2	0.2						7,908.5	10.6	1,218.4	1.7
Lower middle income	8,822	8,609	0.2	0.0						3,734.7	11.0	559.4	1.8
Upper middle income	16,443	15,911	0.2	0.2						4,173.8	10.3	659.0	1.6
<b>Low &amp; middle income</b>	30,962	29,771	0.3	0.3						10,087.9	10.7	1,275.8	1.6
East Asia & Pacific	4,580	4,507	0.3	-0.2						2,221.7	14.0	192.0	1.3
Europe & Central Asia	8,834	8,857	0.0	0.0						1,401.3	6.1	321.4	1.4
Latin America & Carib.	9,834	9,147	0.5	0.5						3,365.2	16.7	495.6	2.7
Middle East & N. Africa	200	211	-0.4	-0.3						294.8	3.6	85.1	1.1
South Asia	789	801	-0.2	0.1						266.6	5.6	20.9	0.5
Sub-Saharan Africa	6,727	6,247	0.4	0.6						2,538.3	11.3	160.7	..
<b>High income</b>	9,495	9,656	-0.1	-0.1						3,954.5	11.8	3,073.0	8.9
Euro area	817	936	-1.1	-0.6						262.5	10.6	19.6	0.8

a. Negative values indicate an increase in forest area. b. Flowering plants only. c. Data reported by the World Conservation Monitoring Centre in 2006 are the most recent year available. d. Includes Luxembourg. e. Less than 0.5. f. Includes Montenegro.

## About the data

Biological diversity is defined in terms of variability in genes, species, and ecosystems. A 2008 comprehensive assessment of world species shows that at least 1,141 of 5,487 known mammals are threatened with extinction. As threats to biodiversity mount, the international community is increasingly focusing on conserving diversity. Deforestation is a major cause of loss of biodiversity, and habitat conservation is vital for stemming this loss. Conservation efforts have focused on protecting areas of high biodiversity.

The Food and Agriculture Organization of the United Nations (FAO) *Global Forest Resources Assessment 2005* provides detailed information on forest cover in 2005 and adjusted estimates of forest cover in 1990 and 2000. The current survey uses a uniform definition of forest. Because of space limitations, the table does not break down forest cover between natural forest and plantation, a breakdown the FAO provides for developing countries. Thus the deforestation data in the table may underestimate the rate at which natural forest is disappearing in some countries.

Measures of species richness are a straightforward way to indicate an area's importance for biodiversity. The number of threatened species is also an important measure of the immediate need for conservation in an area. Global analyses of the status of threatened species have been carried out for few groups of organisms. Only for mammals, birds, and amphibians has the status of virtually all known species been assessed. Threatened species are defined using the World Conservation Union's (IUCN) classification: *endangered* (in danger of extinction and unlikely to survive if causal factors continue operating) and *vulnerable* (likely to move into the endangered category in the near future if causal factors continue operating).

Unlike birds and mammals, it is difficult to accurately count plants. The number of plant species is highly debated. The *2008 IUCN Red List of Threatened Species*, the result of more than 20 years' work by botanists worldwide, is the most comprehensive list of threatened species on a global scale. Only 5 percent of plant species have been evaluated, and 70 percent of these are threatened with extinction. Plant species data may not be comparable across countries because of differences in taxonomic concepts and coverage and so should be used with caution. However, the data identify countries that are major sources of global biodiversity and that show national commitments to habitat protection.

More than information about species richness is needed to set priorities for conserving biodiversity. The

Global Environment Facility's (GEF) benefits index for biodiversity is a comprehensive indicator of national biodiversity status and is used to guide its biodiversity priorities. The indicator incorporates information on individual species range maps available from the IUCN for virtually all mammals (5,487), amphibians (5,915), and endangered birds (1,098); country data from the World Resources Institute for reptiles and vascular plants; country data from FishBase for 31,190 fish species; and the ecological characteristics of 867 world terrestrial ecoregions from WWF International. For each country the biodiversity indicator incorporates the best available and comparable information in four relevant dimensions: represented species, threatened species, represented ecoregions, and threatened ecoregions. To combine these dimensions into one measure, the indicator uses dimensional weights that reflect the consensus of conservation scientists at the GEF, IUCN, WWF International, and other nongovernmental organizations.

The World Conservation Monitoring Centre (WCMC) compiles data on protected areas, numbers of certain species, and numbers of those species under threat from various sources. Because of differences in definitions, reporting practices, and reporting periods, cross-country comparability is limited.

Nationally protected areas are defined using the six IUCN management categories for areas of at least 1,000 hectares: *scientific reserves* and strict nature reserves with limited public access; *national parks* of national or international significance and not materially affected by human activity; *natural monuments* and natural landscapes with unique aspects; *managed nature reserves* and wildlife sanctuaries; *protected landscapes* (which may include cultural landscapes); and *areas managed mainly for the sustainable use of natural systems* to ensure long-term protection and maintenance of biological diversity. The data in the table cover these six categories as well as terrestrial protected areas that were not assigned to a category by the IUCN. Designating land as a protected area does not mean that protection is in force. And for small countries that only have protected areas smaller than 1,000 hectares, the size limit in the definition leads to an underestimate of protected areas.

Due to variations in consistency and methods of collection, data quality is highly variable across countries. Some countries update their information more frequently than others, some have more accurate data on extent of coverage, and many underreport the number or extent of protected areas.

## Definitions

- **Forest area** is land under natural or planted stands of trees, whether productive or not.
- **Average annual deforestation** is the permanent conversion of natural forest area to other uses, including agriculture, ranching, settlements, and infrastructure. Deforested areas do not include areas logged but intended for regeneration or areas degraded by fuelwood gathering, acid precipitation, or forest fires.
- **Animal species** are mammals (excluding whales and porpoises) and birds (included within a country's breeding or wintering ranges).
- **Higher plants** are native vascular plant species.
- **Threatened species** are the number of species classified by the IUCN as endangered and vulnerable.
- **GEF benefits index for biodiversity** is a composite index of relative biodiversity potential based on the species represented in each country and their threat status and diversity of habitat types. The index has been normalized from 0 (no biodiversity potential) to 100 (maximum biodiversity potential).
- **Nationally protected areas** are totally or partially protected areas of at least 1,000 hectares that are designated as scientific reserves with limited public access, national parks, natural monuments, nature reserves or wildlife sanctuaries, protected landscapes, and areas managed mainly for sustainable use. Marine areas, unclassified areas, littoral (intertidal) areas, and sites protected under local or provincial law are excluded. Total area protected is a percentage of total land area (see table 3.1).
- **Marine protected areas** are areas of intertidal or subtidal terrain—and overlying water and associated flora and fauna and historical and cultural features—that have been reserved to protect part or all of the enclosed environment.

## Data sources

Data on forest area and deforestation are from the FAO's *Global Forest Resources Assessment 2005*. Data on species are from the electronic files of the United Nations Environment Programme and WCMC and *2008 IUCN Red List of Threatened Species*. The GEF benefits index for biodiversity is from Kiran Dev Pandey, Piet Buys, Ken Chomitz, and David Wheeler's "Biodiversity Conservation Indicators: New Tools for Priority Setting at the Global Environment Facility" (2006). Data on protected areas are from the United Nations Environment Programme and WCMC, as compiled by the World Resources Institute.